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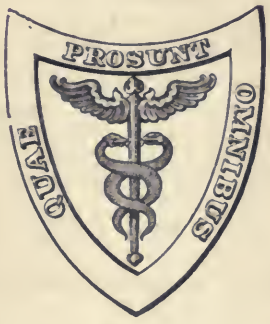

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ORIGINAL ARTICLES.

A NEW STUDY OF LOBAR PNEUMONIA, WITH DEDUCTIONS FROM AN ANALYSIS OF FIFTY-FIVE FATAL CASES.[1]

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HISTORY tells us that in ancient times pneumonia was epidemic, and the Athenian plague that occurred in the year 430 B. C. was described as gangrenous pneumonia; and yet Thucydides claimed that it differed from other epidemics of pneumonia, and resembled typhoid fever; being characterized by ulceration of the bowels and excessive diarrhœa. On the other hand, the Black Death, that in the fourteenth century killed two-thirds of its victims, was associated with cough, bloody expectoration, vomiting and diarrhœa, buboes, carbuncles, and petechial spots. So, in the year 1557, during an epidemic that resembled typhus, in France, epidemic pneumonia was prevalent in Belgium. It occurred in September, after violent and cold north winds, and beginning with catarrhal affections was followed by cough and fever, pain in the side, and difficult respiration. Bloody expectoration occurred on the third day. In the year 1600 there was also a similar epidemic. Its symptoms were dyspnœa, cough and bloody expectoration, pleuritic pains, with delirium. The disease was thought by some to be contagious.

In England many epidemics have been recorded as following influenzas, and Sturges (*The Natural History and Relations of Pneumonia*, London, 1876), to whom I am indebted for the instances just cited, gives a number of similar examples of so-called epidemic pneumonia.

In the majority of these instances, however, the diagnosis of pneumonia was not verified by post-mortem examinations, which were rare in the earlier days of medicine; and even when made did not offer very satisfactory data for the modern pathologist; because the terms used were open to various interpretations. We may truly say that epidemic pneumonia does not prevail to any great extent at the present day; but at the same time a certain number of facts either *appear* to, or *do* actually indicate that it is occasionally epidemic. Thus Dr. H. J. Olklin, the inspecting medical officer of Iceland, in his report of an official visit to Iceland, in 1863, described an epidemic of pneumonia that he found prevailing there, and which he characterized as quite dissimilar from any disease he had seen previous to that time; though his experience covered a sixteen years' residence in foreign countries.

It may be true, then, as Dr. Sturges suggests, that the epidemics of pneumonia narrated by him *did* actually occur; the type varying with the locality. Thus, to give an instance, after the winter of 1708–09, in France, an epidemic of pneumonia occurred in the provinces of Languedoc and Provence, but, on reaching England, shaded off into a widespread influenza. I might mention at this point that the late Dr. James Jackson, of Boston, in "Another letter to a young physician" (Boston, 1861), speaks of an epidemic that occurred in New England between 1812 and 1814. It was called, he says, peri-pneumonia notha, typhoid pneumonia, bilious pneumonia, etc. Post-mortem examinations, he tells us, showed that the inflammation was sometimes seated in the pleuræ; sometimes in the lungs; sometimes in the heart; or in two or more of these parts at the same time. The epidemic followed one of spotted or petechial fever. Of quite another character must have been the epidemic described by Dr. Darlington in a recent number of the *Medical Record* (Dec. 8, 1888), where twenty-five cases of lobar pneumonia occurred within ten days in a total of eighty men, who slept in a single room of a large shanty, and where the foul atmosphere and unsanitary conditions of the workmen seem really to have produced an epidemic.

I. ACUTE LOBAR PNEUMONIA.

My paper this evening is devoted entirely to the subject of lobar pneumonia, in its primary and secondary forms, for I shall adhere to the division of lobar pneumonia into two varieties, as maintained by the old French school that flourished in the first half of the present century; though what was then called primitive or primary pneumonia, I shall call acute lobar pneumonia; and what was called consecutive pneumonia shall be called secondary pneumonia.

It is desirable, however, that I should at this point enumerate the principal types of pneumonia, according to my classification, that there may be no obscurity in my meaning as I proceed.

The types are as follows: 1, acute lobar pneu-

[1] Read before the New York Academy of Medicine, December 20, 1888.

A TABLE SHOWING THE CHIEF CLINICAL PHENOMENA IN 100 FATAL CASES OF THE SEVERAL TYPES OF PNEUMONIA.

	Frequency	Sex.	Occupation.	Part of year.	Lung affected.	Extent.	Antecedent diseases.	Cause.	Duration.	Cause of death.	Physical signs.	Expectoration.	Respiration and pulse.	Pain.	Uræmic sympts.	Nerv. sympts	Abscess.	Gangrene.	Height of temp.
1. Acute lobar pneumonia.	35 Mostly in middle life.	Males largely in excess.	No influence as far as out- or in-door life is concerned.	Oct. to June, 75 per ct.	Right lung usually.	Usually in lower lobe.	.....	Exp'sure to cold subsequently.	1 day to 13 mos., 6 to 9 days.	Mostly heart failure.	In about 50 per cent. dulness and bronchial breathing.	Usually red, brown, black, or green.	Very high pulse rate; resp. rate disproportion'ly high	Present in about 58 p. ct.	Present in about 50 p. ct.	In all.	0	2 per ct.	Higest 108°, average 104.3°.
2. Secondary lobar pneumonia.	19 Mostly after middle life.	"	"	Oct. to June, 100 per ct.	Right lung usually.	"	A large variety of diseases.	.....	1 day to 21 days.	"	In about 65 per cent. dulness and bronchial breathing.	"	Pulse rate less high.	Present in about 40 p. ct.	Present in about 60 p. ct.	"	5 per ct.	5 per ct.	Higest 105°, average 103 6°.
2. Embolic lobular pneumonia.	18 At any age.	"	Out door, 33 per ct., in-door, 67 per ct.	Oct. to June, 78 per ct.	Both lungs usually.	Disseminated.	Pyæmia and endocarditis mostly.	Pyæmia, endocarditis, or pyæmia.	1 day to 26 days.	Sepsis, or exhaus'n or heart failure.	Regular signs rare.	"	Pulse rate much increased.	Present in about 5 p. ct.	Present in about 47 p. ct.	"	22 per ct.	.....	Often normal or subnorm. occasionally mod. elev.
4. Bronchial lobular pneumonia.	20 At any age.	"	Out-door, 77 per ct., in door, 23 per ct.	Oct. to June, 75 per ct.	Both lungs usually.	"	Diphtheria, measles, fractures, nerv. dis.	See other column.	1 day to 30 days.	Heart failure mostly.	Regular signs in about 50 per cent.	"	Pulse rate as high as in sec. lobar pneumonia	Present in about 25 p. ct.	Present in about 40 p. ct.	"	10 per ct	10 per ct.	Highest 108°, average 104 7°.
5. Interstitial chronic pneumonia of heart disease.	8 In middle life mostly	All males.	.....	Dec. to July, 100 per ct.	Both lungs always.	All of both lungs.	Hypertrophy of heart with or without endocarditis.	Cardiac disease.	Mos. or years.	Heart failure or uræmia mostly.	Cough, dyspnœa, and slight dulness.	Yellowish.	No change.	Present in about 28 p. ct.	Present in about 71 p. ct.	"	.....	.....	Occas'nally as high as 103°, gen. no rise temp
Total, 100																			

monia; 2, secondary lobar pneumonia; 3, embolic lobular pneumonia; 4, bronchial lobular pneumonia; and 5, the interstitial pneumonia of heart disease. These different divisions are, in my opinion, characterized by differences that are clinical as well as pathological, and I only follow in the steps of others when I ask for each variety a separate consideration.

Acute lobar pneumonia, as a peculiar form of lung inflammation, was, I think, first clearly differentiated by Grisolle, a student of Louis and Chomel (*Traite Pratique de la Pneumonie*, Paris, 1841). His studies were based upon 373 cases that fell under his personal observation, and it is but just to state that though much has been learned of pneumonia since the days of Grisolle, no work has surpassed his, in the completeness of its clinical and anatomical details; although his statistics lose value in some directions, because some of us, at the present day, have adopted a different classification for the less common varieties of pneumonia, which, in older times, were either grouped together under the general term "pneumonia," or were placed apart by themselves.

Acute lobar pneumonia occupies a unique position in the catalogue of diseases, for both anatomically and clinically it is unlike any known disease.

And we do well not only to distinguish it from secondary lobar pneumonia; from catarrhal or broncho-pneumonia, known sometimes as lobular pneumonia or capillary bronchitis; from septic pneumonia, known often as embolic or pyæmic, and from the interstitial pneumonia of heart disease, but also from pseudo-pneumonias, such as the so-called fibrous pneumonia (the fibrous phthisis of Sir Andrew Clark and others); from the catarrhal phthisis of Niemeyer (known as catarrhal pneumonia in some quarters); from syphilitic pneumonia (syphilitic phthisis), or any form of lung syphilis; from various other forms of interstitial pneumonia, such as are caused by the inhalation of foreign substances; and, finally, from hypostatic pneumonia, a bastard form, that is nothing more nor less than chronic pulmonary congestion. I should not forbear to mention that acute lobar pneumonia has also been called *croupous* pneumonia, from the fact that fibrin, which constitutes the chief characteristic of a croupous or membranous exudation, is of very frequent occurrence in the exudation that fills the vesicles: but I prefer the term lobar, because fibrin may occur to some extent in the exudation of lobular pneumonia, and because the word croupous has been largely used, chiefly in German literature, to contradistinguish any given exudation from the so-called diphtheritic, the differences being pathological, and not in any way clinical. In fact, the inutility of the term croupous is best shown by the fact that croupous and catarrhal processes may be combined in any examples of

pneumonia, whether lobar or lobular; and may also be associated with certain chronic processes, such as phthisis or syphilis. At any rate, it is often difficult in lobar pneumonia to determine whether fibrin is really present in the exudation.

Acute lobar pneumonia is the most common variety of pneumonia. In 100 fatal cases from my hospital and private records, I have found the several varieties represented as follows: acute lobar, 36 per cent.; secondary lobar, 19 per cent.; embolic lobular, 18 per cent.; bronchial lobular, 20 per cent.; interstitial of heart disease, 7 per cent. It is most common in males, and occurs most frequently between the ages of thirty and eighty.

And yet it may occur at all ages, but by common agreement broncho-pneumonia is the pneumonia of children; lobar, of middle life or old age; acute lobar, of middle life more particularly.

Acute lobar pneumonia is a disease that chiefly affects the residents of northern or middle latitudes. It is comparatively uncommon in equatorial regions.

According to the French observer Lombard, females were attacked twice as frequently as males; but Fagge, whose studies have been more recent and, I think, far more trustworthy, has found that it was chiefly a disease of the male sex. My statistics sustain those of Fagge, and even show that the ratio between males and females may be more than four to one.

When the disease originates in one lung, the right is usually selected, and this fact has been emphasized from the days of Andral to the present time, and abundantly sustained by thousands of post-mortems. And the same rule holds good, whether the disease be acute (primary) or secondary. When both lungs are attacked, the second lung is rarely involved until the affection in the first attacked has gained some headway.

In 33 of my cases the locality was as follows: In 17 the right lung alone was attacked; in 6, the left; in 10, both were affected. The disease usually commences in a lower lobe, and it has been agreed by those who have had the requisite experience, that this is the rule.

It has long been wondered why pneumonia chiefly affects the right side, and the question has arisen whether it is due to the common practice of lying by preference on the right side; to the increased functional activity of the right lung; or to its increased volume. It is difficult to answer the question. But, other things being equal, it is plainly to be seen that the increased volume of the right lung necessarily exposes a larger area to the causative agents of the disease.

The first stage is commonly called the stage of engorgement. The whole tissue increases in volume, and is infiltrated with a serous fluid, while there is more or less transudation of blood from the distended vessels. The second stage is called the stage of red hepatization. The lung is now of a deep red color, unyielding to the touch, and is difficult to distinguish from an inflamed liver. It contains no air, or very little, and almost no fluid. The cut surface has a rather rough or granular and dull aspect, as if some finely powdered substance had been strewn over the surface; each little speck corresponds to an air vesicle or cut bronchiole, which is filled with a little firm pellet, consisting of blood-cells and epithelium intermixed very frequently with fibrin, the latter holding the various elements firmly together. The red color of the lung at this stage is derived entirely from the red coloring matter of the blood corpuscles. In the third stage, that of gray hepatization, the diseased lung has assumed a different color. The reddish tint has yielded to a dirty gray, at first tinged with brown, and then with yellow. The tissue is now softer, and, on pressure, exudes a small amount of fluid, in color the same as the lung. The walls of the bloodvessels are also studded with leucocytes. In many cases dark pigmentation of the interlobular spaces is observed, the result in part of the congestion which the lung has experienced; in part, to other causes. The lung is now so greatly increased in size that it may weigh upward of sixty ounces. Normally, both lungs weigh about forty ounces.

Acute lobar pneumonia is very apt to begin with a chill of considerable severity, but it is soon characterized, more or less regularly, with pain in the side, cough, and difficult breathing. At the same time the patient experiences general malaise, pain in the limbs, and some headache. But, sometimes, instead of a regular chill, there may only be chilly sensations, with nausea and vomiting; or wandering pains may precede the chill. Within a few hours the temperature commonly rises to 103° or 104°. In both lobar and lobular pneumonia there is a peculiar alteration in the usual ratio between the pulse and respiration. According to my experience, the chronological order of events is as follows: 1, pain, prostration, and cough; 2, a severe chill; 3, nausea; 4, rise of temperature.

One of the most important early signs, though seldom the earliest, is fine crepitation, as it has been called. This peculiar phenomenon is heard only during inspiration, but it is not a sign that is positively essential; occasionally, it lasts the entire length of the disease. As soon as the second stage begins, there is dulness on percussion, with bronchial breathing and bronchophony. There is also increased vocal fremitus.

In the fourth stage, that of resolution, we hear the returning crepitant râle, the râle redux. Normal vesicular breathing will not return until the patient is thoroughly convalescent.

Let us review more closely the individual symptoms. In Grisolle's cases the chill occurred in 145 out of 182 instances, and then during the first twelve

hours of the malady. In 110 times it occurred at the very onset of the disease. Louis noted it in 61 out of 79 cases on the first day. According to these observers, the reason that the chill was not more frequently appreciated lay in the fact that it often occurred during sleep. Of course, other reasons suggest themselves, and one in particular is, that the patients may have mistaken the chill for the exposure to cold, which, in reality, existed only in their imagination. It is an important sign, and apt to be as pronounced as the chill of intermittent, puerperal, or yellow fever. It is not so prominent as the chill of pyæmia. A chill of this sort in old people, who are not specially prone to acute diseases, instantly raises the supposition of pneumonia. As already stated, my cases indicated that pain in the side usually preceded the chill. In 20 per cent. of Grisolle's cases the same phenomenon was noted. It is, therefore, of common occurrence.

Cough is also a very regular symptom. Grisolle found it in 89 per cent. of his cases, and during the first twelve hours of the attack. I am inclined to think that the locality of the affection, whether in an upper or lower lobe, does not influence the production of cough or affect its character. In old people the cough may be absent. In children it is almost always present. Sometimes it is the first symptom, but the cough may and usually does lessen as the disease progresses, even if it go on to a fatal termination.

The expectoration of pneumonia is peculiarly tenacious and variously colored. It is not always of the characteristic prune-juice color, though that is looked for; it may be red, black, green, or colorless. The characteristic sputum of pneumonia has three qualities: color, consistency, and coalescence. This sputum may occur on the first day, or not until the third or fourth; but the characteristic sputum, so far as the color is concerned, is not always present, and it may occur occasionally where no pneumonia is present, as in nasal or pharyngeal catarrh, where there has been hemorrhage; or a true pneumonic sputum may occasionally be seen in acute laryngitis, as I had the opportunity of observing very recently. In such cases the sputum may be quite coalescent, consistent, or may even be striated with a brownish coloration. We are told that in the time of Hippocrates a diagnosis of pneumonia was based on the character of the expectoration, but there are other signs more important than this one. In a certain class of cases the sputum is red or bloody in the first stage, but the color is usually that of iron rust; as the disease approaches its natural termination by resolution, the sputum is apt to be yellowish in color. In 2 of my cases there was no expectoration at all; in 15 it was either bloody, blackish, rusty, or greenish.

In 78 per cent. of the Grisolle cases he found that the pneumonic sputum occurred within the first four days, usually on the first day, but it might be delayed until the twelfth day. Often, however, groups of instances have been observed in which the sputum was uniformly colorless throughout the disease. Furthermore, cases have been seen by clinicians everywhere in which there was no expectoration at all; in very young children it is uniformly absent. Among other symptoms to be noted is a loss of appetite, that is generally marked. A certain degree of thirst is proportionate to the fever. Diarrhœa also is frequent, and nausea and vomiting occur in a goodly number of patients, as we shall see. The urine is often scanty, but there has been a difference of opinion as to the frequency of nephritic implication. Thus, while Grisolle says that albuminuria is common, and Rayer (*Traite des Malades des Reins*, vol. i. p. 578, Paris, 1859) sustained this view in a general way, they had not the experience that we have to-day. Albuminuria in acute lobar pneumonia is quite common, though not so common as in the interstitial pneumonia of heart disease. It is usually most marked at the height of the disease. Parkes (quoted by Sturges) was not far from the truth when he said that albuminuria might be present in 45 per cent. of the cases, though he appears to infer that sometimes it may not occur at all. It is unfortunate that urinary examinations are not made with more frequency or exactness in cases of pneumonia; for if this matter received due attention, I am convinced that a nephritic implication would be found more frequently than now appears from the published accounts of writers on this topic. Often we have to depend, as in my cases, upon hospital records; and since many of the patients are brought into the wards in a moribund condition, it is manifestly impossible to secure the complete evidence on this point that is needed for statistical purposes. But judging from analogous instances, we have a right to infer that the kidneys were affected in these imperfect cases as frequently as in others in which the histories were complete. Hence my statistics actually show a less amount of nephritic trouble than existed. They show, however, a percentage of 41: in 5 per cent. of this total there was chronic kidney disease of long standing; in 8 per cent. only did it positively appear that there was no urinary implication, as shown by clinical and post-mortem evidence. And therefore, finally, there was positive evidence of acute renal disease in 28 per cent. of the cases.

Now, though I am convinced that this percentage is really too low, I am equally well convinced that acute renal inflammation is not so common in pneumonia as I once thought it was. So far as the kidney is concerned, we have more to fear from the acute exacerbation of an old nephritis, where the damaged organ is suddenly called upon to do vicarious work, for which it has little capacity.

The importance of percussion was not known until 1763, when Avenbruegger's book appeared; but it remained for Laennec (*Traite de l'Auscultation*, vol. i. p. 27) to give a succinct account of the physical signs in pneumonia; and his discovery of the crepitant râle, as indicating the first stage of pneumonia, has proved to be a landmark up to and at the present time. In fact, but little has been added to our notions of the clinical aspects of pneumonia since the days of Laennec. The additions have been made by Andral, Chomel, Grisolle, Stokes, Williams, and last, but not least of all, Wilson Fox and Fagge.

In the first stage, that of engorgement, though we might expect to find dulness, we do not. But Grisolle found in this stage a loss of elasticity in the chest walls when the chest was being percussed, especially in the supra-spinous and infra-spinous fossæ. In lobular pneumonia it is generally admitted that there are no signs derived from percussion in this stage. In children whose chests are very sonorous, full resonance may be yielded. In the lobular pneumonia of children and central pneumonia there may be bronchial breathing without dulness.

The crepitant râle, according to Laennec and his followers, was thought to be the first pathognomic sign of pneumonia. But Stokes (*Diseases of the Chest*, Philada., 1844, p. 276) held, *per contra*, that puerile respiration preceded crepitation. Grisolle, in a measure, sustained the views of Stokes. The crepitant râle was first compared by Laennec to the noise made when salt was thrown on a coal fire. It has also been compared to the blowing up of a dry bladder; to the sound produced by pinching a piece of inflated pulmonary tissue held close to the ear; to the grinding of a lock of hair between the fingers or squeezing a little ball of tissue-paper near to the ear. This sound has met with various interpretations, but almost all observers are united in the opinion that it is produced by fluid matter passing into the vesicular substance of the lung. At some seasons the fine crepitant râle is rarely heard; in old people it may be replaced by a coarse crepitant râle. But Laennec (*Diseases of the Chest*, New York, 1830, p. 212) not only held, as I have already stated, that it was characteristic of lobar pneumonia, but that it occurred in no other affections except œdema of the lungs and pulmonary apoplexy. I think, however, that it is generally admitted now, in the best quarters, that fine crepitation is also heard not only in the several types of pneumonia but also in pulmonary phthisis and syphilis, or even in bronchitis, as Andral claimed. I might multiply instances from my individual experience to sustain this view, but I refrain from doing so, because I presume the point will be conceded by those who have made special studies in this direction.

Prolonged expiration, a symptom first noted by an American physician, James Jackson, of Boston (*A Memoir of James Jackson, of Boston*, 1855), is next to be considered. It precedes tubular or bronchial breathing, which sound has been compared to the breathing or blowing of air through a wooden tube. This latter symptom may not be recognized where there is liquid effusion. When the ear applied to the chest appears to locate the sound of the patient's voice nearer than in health, we have bronchophony. Where there is a considerable area of dulness the voice sounds may be metallic in quality. It appears singular that in pneumonia, even if one lung be extensively involved, there is rarely any alteration in the symmetry of the sides.

Pain is most frequent in the nipple; next, at the base of the lung. It also may be felt at any portion of the chest wall. The pain is due to pleurisy. It is not always present. The tongue is usually furred, but it may be dry or brown. It is affected in two-thirds of the cases. The pulse is usually 100 or more—it may reach 160; in children it often varies between 130 and 140. Jaundice is not very infrequent, and delirium is a common symptom, especially in subjects addicted to alcoholism. In my 55 cases of primary and secondary pneumonia, delirium was noted in 26 per cent. Coma occurred in 3 per cent. In many cases it is uræmic; in mine in 17 per cent. Coma, possibly delirium, may also be due to carbonization of the blood.

At first the respiration will rise to 22, perhaps 36 per minute, but within two days it may reach 40, 50, or 60; 64 is the highest I have known. In my cases the pulse-respiration ratio shows that there was uniformly a high ratio between respiration and pulse. Thus while the pulse was never more than the double of the normal, the respiration was often three times the normal, and in an average of 7 cases was about twice the normal. The highest recorded pulse I have known was 160; but the highest recorded respiration was 64; the lowest pulse-rate was 100; the lowest respiration-rate was 28.

The difficulty in respiration varies with the individual. Some may have a respiration of 40 and will not complain; others may feel embarrassed by a respiration of 24.

Inflammation of the lower lobes appears to produce more oppression than of the upper. In persons with contracted chests and abdominal distention the disease is not well borne.

A decided elevation of the temperature occurs in pneumonia. It may reach 103° or 104° within the first few hours of the disease. In children it reaches a greater height than in adults. The temperature rises from 1° to 2° at night and falls in the morning. The highest temperature in my cases was found to be 108°, and at death; the lowest 100.2°. In ten the highest average temperature was 104.3°.

The crisis usually occurs between the third and the eighth day; or, more accurately, between the

fifth and the seventh days. Acute lobar pneumonia is, therefore, of comparatively short duration. Unless it has unusual complications or sequelæ, the attack should not exceed fourteen days at the utmost. Any case that is claimed to have lasted more than two weeks should be regarded with the gravest suspicion. In 30 of my cases the duration was as follows:

In 1 . .	1 day.	In 4 . .	8 days.
In 1 . .	3 days.	In 4 . .	9 "
In 4 . .	5 "	In 3 . .	10 "
In 6 . .	6 "	In 2 . .	12 "
In 2 . .	7 "	In 3 . .	13 "

Of course, these figures of mine prove little except that the fatal issue, if it comes, may occur on any day of the disease, always within two weeks; but that the danger is greatest about the end of the first week, or, in reality, on the sixth day. This fatal epoch corresponds with the date at which the crisis occurs, according to most clinicians.

The immediate cause of death is usually heart failure, the tired heart muscle becoming exhausted as a direct result of the prolonged and exhaustive work it has had to perform; or indirectly through the influence of poisoned blood upon the nerve centres. In rare cases the respiratory nerves will yield, and respiration will stop, though the heart proceed. I have known it in two instances; one of which is not included in my tables.

My records show that in 17 cases, in which the direct cause of death was noted, the figures were as follows: in 11 heart failure, in 5 uræmia, in 1 respiratory failure.

There is usually no great difficulty in making a diagnosis in acute lobar pneumonia, but I have known it to be mistaken for empyema and abscess of the liver.

According to Sturges, pneumonia is produced by cold, dry, penetrating winds, while colder winds or variable winds with wet weather produce bronchitis (page 161). Grisolle thought that lobar pneumonia was not caused solely by cold, which, however, produced it occasionally. He thought that the chilly feeling described by patients at the commencement of the attack, and which they thought produced the pneumonia, was really the chill of the early stage, a point I have already alluded to. Of 200 cases collected by him, it was found that only 49 ascribed pneumonia to catching cold. Barthez (*Leçons de clin. Méd. Sestier.*) found the proportion 38 out of 125; Chomel (*loc. cit.*), 14 out of 79; Bouillaud, 16 out of 26. Grissolle thought that where cold produced pneumonia it was not due to a sudden and short exposure to an extreme change of cold air; but to a prolonged exposure to a less degree of cold, as to a current of cool air. Laennec thought that pneumonia was due to cold, long continued, or received when the body was heated or perspiring. Epidemic pneumonia might be due to an absorption of deleterious substances. Laroche, in an elaborate work on *Pneumonia in its Relation to Autumnal Fevers*, published in 1854, disposed of the view once held that pneumonia had a causal connection with autumnal fevers, and ascribed its origin to atmospheric causes, exposure to cold, violent exercise of the voice, inhalation of irritating vapors, wounds of the chest, metastases in gout, rheumatism, and skin diseases, and to surgical operations.

I am inclined to think, however, that we agree in the main with Grisolle, Bretonneau, and Frank (*Méd. Pratique*, t. i. p. 164) that the inhalation of irritating gases or vapors does not produce lobar pneumonia, but the lobular variety.

Some later writers, like Ziemssen, have thought exposure to cold a very infrequent cause of pneumonia; he traced it in only 10 out of 186 cases; Griesinger in only 4 out of 212. I found it ascribed in 22 per cent. of my cases.

But if we note the time of the year at which pneumonia is prevalent, we at once realize that it is a disease of the late autumn, winter, and spring months. Thus, in my 36 cases, 27 fell between October 1st and June 1st; 9 only in the remaining four months.

Figures apparently show that the occupation has little bearing on the causation of acute lobar pneumonia, and singular as it may appear at first sight, the ratio of disease among those who have led an indoor life to those who were engaged in out-of-door pursuits was as 11 to 10 in my tables. But we should not misconstrue these figures, for various reasons, one of which is, that, in reality, the former class is often more exposed to sudden atmospheric changes than the latter class. And so it happens that the disease is common among firemen, cooks, blacksmiths, waiters, and laundrymen, largely because their occupation, though indoors, necessitates great physical activity in an atmosphere that is alternately hot and cold. On the other hand, others who work indoors, like clerks, telegraph operators, and barbers, are apt to be exposed to drafts, or degrees of temperature which they cannot control.

From the foregoing, it is made to appear that there may be two varieties, at least, of acute lobar pneumonia: First, a sort of epidemic form, sometimes associated with diarrhœa or dysentery, where persons have been crowded together and compelled to inhale foul air. Such forms of pneumonia may be called pythogenic; and under this head it would be proper to class such epidemics as Dr. Darlington has described. Secondly, a pneumonia due directly to cold, such as was described by the Icelandic physician, and which is universally recognized, though it is rarely seen in the epidemic form that he describes. There are, doubtless, other causes which we have yet to discover.

I should not fail to notice here that the infective

character of acute lobar pneumonia has been sustained in a measure by the researches of Griffini and Cambria, who, in 1882, described peculiar bacteria in the sputum of patients suffering from lobar pneumonia. Numerous other observers have detailed somewhat similar experiences; and in the following year Friedländer found spherical microörganisms which were described as oval and contained within a distinct capsule; but in 1884 similar bodies were found in catarrhal pneumonia, which is generally held to be a disease of dissimilar character; and in 1885 Sternberg described somewhat similar capsulated bodies in the saliva (*American Journal of the Medical Sciences*, July, 1885); but, briefly stated, it appears that no observer has as yet complied with Koch's law as to the determination of whether or not a given microcyte is the cause of the disease, viz.: by, first, its successful culture apart from the body; second, its successful inoculation on the body with the subsequent production of a pathological condition the counterpart of the disease in a given organ. Thus it would be necessary to show that a pure culture inoculated upon the blood remote from the lungs produced lobar pneumonia. Experiments, however, have almost always failed in this respect, and it has been found necessary to inoculate the lung tissue, where any foreign substance will, if injected, produce pneumonia. Even in such experiments it is *lobular*, not *lobar*, pneumonia that has commonly resulted.

Pleurisy is a complication that is to be expected, and the ancients were right when they spoke of lobar pneumonia as pleuro-pneumonia. The pleuræ are always involved when inflammation reaches the surface of the lungs. So that pleurisy is never absent, except in such rare cases as when the disease is central. But such acute observers as Stokes have questioned this now-established fact.

A comparatively frequent complication is pericarditis, which develops either by an extension of the diseased process or by a simultaneous implication. A more important complication is disease of the kidneys. In a large number of the cases, as we have seen, if not in one-half, the kidneys are involved; there is then more or less swelling of the parenchyma of the organ. The spleen is apt to be enlarged also; and there is catarrh of the intestinal tract. Pericarditis occurs in about one-third of the cases according to Sturges; in my cases, in ten per cent.

Laennec thought that abscess of the lung was a very rare termination of pneumonia. In an experience lasting twenty years, he found it only five or six times; Chomel only twice; Andral and Louis only once each. Grisolle saw one case in ten years' practice, and Grisolle found that the united testimony of Russians, Poles, Swedes, and Finns was to the same effect. An abscess is described as containing laudable pus, which is inodorous, and is found in the centre of hepatized tissue. The line should be sharply drawn between such an abscess and gangrene of the lung, or cavities in tuberculous or syphilitic subjects, or in the metastatic deposits of pyæmia, or in septic endocarditis. In my thirty-six cases of acute pneumonia it never occurred; but gangrene was noted in one instance. According to my notions, phthisis can never develop from lobar pneumonia; but the discussion of this matter is out of place here. As to the so-called cirrhosis of the lung as a sequel of pneumonia, on which authors seem to be divided in opinion, I have nothing to say, because I have no experience in the matter.

The important question of the mortality of pneumonia which so agitates and interests the medical profession to day scarcely comes within the scope of my paper; but I cannot let it pass unnoticed, if only I indicate some of the sources of previous error and make suggestions by which we may reach conclusions that have at least an approximative value. For it is profitless to give statistics of a general disease like pneumonia unless we know: (1) the variety; (2) the decade of the patient's life; (3) the general character of the attack. For lobar pneumonia has quite a different mortality rate from either variety of embolic pneumonia, the cardiac, or pyæmic. So the rate is different in childhood, in adult life, and in old age. And the fatality at some seasons appears to be greater than at others, under the same general form of treatment.

But though I have no trustworthy statistics to offer I will mention some that have come down to us, and they can be accepted for what they are worth. According to Sturges, the mortality among the most eminent of the old French school was as follows; Louis, 30.8 per cent.; Andral, 55.4 per cent.; Chomel, 32 per cent.; Bouillaud, 11 or 12 per cent.; Grisolle, 16 per cent. Bouillaud had revived the practice of bleeding which was prevalent in Europe during the last century, especially in Italy, where it was not uncommon to take from the unfortunate patient as much as ten pounds of blood during an attack. It was said that the mortality by this method of bleeding, together with the use of tartar emetic, was reduced to 10 per cent. It was claimed also that hepatization of the lung was prevented. Bouillaud was satisfied with five pounds of blood.

Just before the middle of this century, however, Skoda published some statistics that tended to prove that pneumonia was a self-limited disease. But the figures given about the year 1842, by Fleischmann, a homœopathist, showing a mortality of less than 6 per cent., made a great impression on medical minds, and whether correct or not, led Dietl, a non-homœopathic practitioner, to try the dietetic method. The result was, in the first series of cases, a mortality of

only 7.4 per cent. But the most astonishing results were soon published by Barthez: of 212 cases between the ages of two and fifteen years, only 2 died, a mortality of less than 1 per cent. Here we note, for the first time, an important fact, viz., that the fatality from lobar pneumonia in children is very small. Then Bennett, by his so-called restorative treatment, saved 4 out of 125, or 3.2 per cent. His plan was to give salines to obviate the "viscosity" of the blood; wine to sustain the system; and colchicum and nitrous ether to "favor the excretion of urates." The best results, however, appear to have been given by Zeigelé, who lost none in 40 cases. The patients, however, were young.

It is apparent, after a brief study of these, or of any similar statistics, that their variation is to some extent a natural one. And though it is ostensibly true, in my individual judgment, that the expectant plan is the most successful on the whole, still the results are by no means uniform in the hands of the same person. This is partly due to reasons already given, viz., that there is much variation in the types of pneumonia from year to year; and that the pneumonia of childhood, adult, and old age are different in their expectation of life—in fact, that each case of acute lobar pneumonia stands apart by itself.

Thus the late Bamberger, of Vienna, during an experience of three years, had a mortality of 11.2 per cent.; during another three years of 18.19 per cent.

In the year 1858 the mortality at St. Thomas's Hospital was 17 per cent.; in 1859 it was 5.7 per cent. And I have been unable to learn that the variation in results was due in any way to differences in treatment. At the present day we are more than ever likely to misconstrue statistics, unless we have the most positive information as to the variety of pneumonia which we have under consideration, because the term "pneumonia," under one or other of the forms already enumerated, enters much more frequently into post-mortem records than formerly.

But as I have already stated, acute lobar pneumonia is different from secondary lobar pneumonia, catarrhal from embolic, and each from the interstitial of heart disease. I hold them to be true types of pneumonia, but, as I intend to show on another occasion, they are totally distinct in etiology, course, and termination. One of the best foreign writers on this subject has fallen into the most obvious error of taking his statistics from all of these varieties combined.

Admitting, however, that these statistics are of value, we have evidence, as I have said, that the so-called expectant plan is the best. I believe that we have passed the period when any one will attempt to prove that we can arrest the disease. We do, indeed, sometimes meet with cases of pulmonary congestion, in association with cardiac or renal disease or malaria, that present some of the signs of lobar pneumonia, but the prompt relief by stimulants or anti-periodics teaches us the nature of the congestion.

The cause of death also demonstrates the obvious direction in which our main efforts are to be made. It is not so much in the direction of reducing the temperature as toward sustaining the heart; next, to obviating renal complications. Hence, our clinical data supplemented by our pathological *do* point out the line of treatment. I doubt whether the high temperature in pneumonia is in itself a demon that we must attack and overthrow; and I have been led to believe, by post-mortem studies, that the use of antipyretics to reduce temperatures not only weakens the heart's action, but has some unfavorable action on the kidneys. It seems to me that since the introduction of the newer antipyretics, especially where they have been employed in large doses, the renal implications have been greater than before. I believe that every case of acute lobar pneumonia should be treated by itself, and the indications should be met as they arise.

Hence, the remedial agencies that have, from time to time, met with favor have an appropriate field for their employment. I have often seen benefit from copious and repeated cuppings in sthenic cases. In less vigorous persons I have seen relief follow upon the cold-water applications. In cases of defective hepatic action, I have seen relief from mercurials in large doses. In persons with weak hearts I have seen the patient carried safely through with alcoholic stimulants. In renal complications I have seen marked relief to the pulmonary symptoms from remedies chiefly addressed to the kidneys. Reduction of the temperature is indeed a relief to the patient, but I fancy it is safer to accomplish it through the aid of the simpler remedies that cause diaphoresis, rather than by those that act *more* promptly, but whose secondary effects are, to state it mildly, of doubtful value. I think we now realize that though high temperature in acute pneumonia is a symptom that is alarming, it is rather because it is an index of violent systemic disturbance than because of the bodily heat itself; since the patient may successfully endure a much higher degree of heat than obtains in pneumonia, and yet survive.

II. Secondary Lobar Pneumonia.

There is a positive advantage in retaining this division of lobar pneumonia, which, as I have stated, was recognized by the old French school, while it has also been approved by prominent clinicians up to the present day. In the nineteen cases from my post-mortem records, from which I have drawn my conclusions, there is seen to be a line of phenomena which plainly indicate certain differences between the primary or acute, and the secondary form.

These bear: 1, upon the age of the individual;

2, the nature of the antecedent or concurrent affection; 3, the apparent causation; 4, the character of the pulse and respiration; 5, the tendency to secondary suppurative changes in the lung; and, lastly, 6, the temperature.

In secondary pneumonia the ordinary clinical signs are either masked by the concurrent disease, or are so ill-defined, that the pulmonary attack may pass unnoticed, even when the physician is observing the case with ordinary vigilance; and so it happens that sometimes in our best hospitals, secondary lobar pneumonia may first be detected at the post-mortem examination. I feel confident that my colleagues, in pathological research, will bear me out in this statement. Indeed, the attention of the physician may not be directed to the pulmonary complication, because the patient himself has not had his own attention directed to it. Such things happen with old people; or it may be that a physical examination of the chest is impracticable, and then the physician is fully exculpated, if the other ordinary physical signs are absent.

I have observed the following antecedent conditions in secondary pneumonia, and I enumerate them as I have found them, without committing myself to an opinion as to their etiological value: nephritis in 5, alcoholism in 2, phthisis in 2, burns in 2, rheumatism in 1, fracture of the ribs in 1, hypertrophy of the heart in 1, pleurisy with effusion in 1, pericardial effusion in 1. Secondary lobar pneumonia I have found in contemporaneous connection with the following affections: Abdominal dropsy in 1, pericardial effusion in 1, gangrene of the extremities in 1, aneurism of the aorta in 1, bronchitis in 2, syphilis in 2, endocarditis in 2, hydrothorax in 1. And I enumerate these concurrent affections also just as they appear upon my records as typical cases of secondary lobar pneumonia. In particular, I would say that neither phthisical nor syphilitic processes had any apparent connection with the pneumonia. In fact, all cases in which there was any suspicion of phthisis or syphilis as possible causes of lobar pneumonia were thrown out of the computation.

But I may at this point state that, though the term secondary pneumonia has been in constant use for more than half a century, it is not profitable to use the statistics bearing on this matter, as they have been furnished to us. Without going into wearisome particulars, it should suffice us to know that it was confounded with acute lobar pneumonia by Grisolle, and with hypostatic pneumonia (venous congestion) by Louis. Secondary lobar has been held to occur chiefly between the fourth, fifth, and sixth decades of life. I have found it chiefly between forty-five and eighty.

In regard to sex, though it has been held that males and females are equally prone, my tables show that the males preponderate in the proportion of 17 to 2.

It seems to be most common in winter, and of my 19 cases not one occurred between May 1st and October 1st, though I cannot see that this rule should always obtain, because if, as would appear, the bursting of an aneurism, a surgical operation, etc., or other constitutional disturbances were exciting causes, we have no right to expect that the season of the year should have any special influence.

As I have already intimated, secondary lobar pneumonia is usually insidious; the chill is frequently absent. It probably does not occur in one-fourth of the cases, and then has little intensity. The pain in the side may also be absent. The difficulty in breathing may not be marked. The crepitant râle will, however, be heard, as a rule. The temperature will rise rapidly, as in acute pneumonia, but it will average somewhat lower, though the temperature may not indicate the severity of the attack; with a comparatively high temperature the patient may survive; with a comparatively low temperature he may succumb. The average temperature will be about a degree lower than in acute lobar pneumonia. I have found it to average at the highest 103.6°. The pulse will often rise sharply at the outset, and may reach 140; but it will average about 120 to 124, a lower rate than in acute pneumonia. Bronchial breathing and dulness may be the most decided symptoms, and they are the most common in my experience. They were noted, in fact, in about 70 per cent.

The expectoration is apt to be scanty and often affords us little help in the diagnosis. I have noted it only in about one-third of my cases, when it was either bloody, rusty, or black.

Renal symptoms are apt to be more prominent, however, than in acute pneumonia.

As indicating the difference in the type of this variety of pneumonia, there is found a more decided tendency to suppuration than in the acute form.

The duration of secondary pneumonia proper is about the same as in acute pneumonia; but the crisis is apt to come earlier, because the patient is already exhausted by the antecedent trouble. Hence, I find that out of 14 cases 8 died within forty-eight hours, and that the period of greatest danger was between the second and third day.

The immediate causes of death are attributable mainly to the same three conditions that are prominent in acute lobar pneumonia, viz.: 1st. Heart failure, and in about half the cases; 2d. Uræmia; and last and least, respiratory failure from the toxic influence of the unhealthy blood on the nerve centres.

These facts, in my estimation, sufficiently indicate the proper line of treatment.

17 EAST FORTY-FOURTH ST.

NOTES ON THE TREATMENT OF INFLAMMATION OF THE FRONTAL SINUSES.

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JUDGING from a perusal of the recent literature upon this subject, the treatment of inflammation of the frontal sinuses is most imperfectly understood by the general surgeon, and notes on improved methods of technique with their results seem timely.

As tersely described by Bosworth, "the frontal sinuses are two irregular cavities which lie between the two tables of the frontal bone. They are absent in children, but become developed in adult life. They communicate with the nares by the infundibulum, a rounded canal which opens into the middle meatus." They are lined with a vascular mucous membrane covered with ciliated epithelium, which is continuous with that of the nasal cavities.

Unless due to external violence or to the presence of neoplasms or foreign materials in their lumen, inflammation of the brow sinuses is always dependent on intra-nasal disease. Leaving the former rare causative factors—which will be found described in the classical text-books on rhinology—we find that almost every stage and variety of rhinitis presents a corresponding condition in the frontal sinuses.

In all severe cases of acute coryza the infundibulum is more or less occluded by swelling, and there is hyperæmia of the lining mucous membrane of the frontal cavities, as is clearly shown by the marked brow pain and the sense of distention in the supra-orbital region. It is in aggravated cases of this disease that true inflammation of the frontal sinuses is found; a patient suffering from a severe acute coryza "takes fresh cold," and as a result the nasal inflammation is greatly increased, and the patient soon complains of great pain in the region of one or both frontal cavities, which is soon followed by external tumefaction, the face often being curiously distorted by the swelling, and the upper eyelid œdematous. Reeve, of Toronto, has published in the *Canadian Practitioner* some cuts which give an admirable idea of the deformity in this affection.

Constitutional symptoms, consisting of pyrexia and often great nervous disturbance, now appear, and the patient is often forced to confine himself to bed. Somewhat later in the course of favorable examples there is a marked muco-purulent or sanious discharge from the nasal passage of the affected side. In the worst type of cases a true abscess forms, which may penetrate the anterior wall of the sinus or, in syphilitic subjects especially or, perhaps, exclusively, the abscess may perforate into the cavity of the cranium.

The symptoms in such cases are of the gravest character: delirium, coma, and paralysis ending in death, if not relieved by operation, are usual, or the patient may make an imperfect recovery delayed by many complications. Examples of this grade of severity are, however, exceedingly rare, and may nearly always be prevented by proper treatment during the earlier stages. Permanent dilatation of the frontal sinus may result from repeated attacks of purulent inflammation, causing much facial deformity.

In all cases of chronic rhinitis, especially of the advanced and sclerotic type, there is interference with nasal drainage and partial stenosis of the infundibulum, with the resulting symptoms of persistent frontal headache, and a sense of tension in the supra-orbital regions — the excessively common "catarrhal headache;" a form of suffering which often causes patients to apply for relief. Subjects who have inherited or acquired the "catarrhal tendency"—extreme liability to "take cold" from the slightest exposure, resulting in all the symptoms of acute coryza, but lasting for a few hours only, or a day or two at most—frequently suffer greatly from brow pain, often of considerable severity and repeated at frequent intervals, from acute hyperæmia of the frontal sinuses which they not infrequently regard as the most serious symptom of their disease.

Lastly, in some cases of chronic nasal inflammation, especially of the true atrophic type, there is an actual chronic purulent inflammation of the frontal sinuses, pus being discharged through the nasal cavities—this condition is, however, not common.

The treatment of hyperæmia of the brow sinus occurring in the course of an ordinary acute coryza is, fortunately for the patient, very satisfactory. The first indication is to reduce intra-nasal congestion, and thus relieve stenosis of the infundibulum. In the muriate of cocaine we have an agent perfectly suited to meet this indication: a small pledget of cotton soaked with not above ten drops of a five per cent. solution, is to be tucked up over the anterior portion of the lower turbinated body by means of a very delicate ear forceps (of course, under perfect inspection), and allowed to remain for about five minutes. The result is nearly always immediate, and frequently permanent relief from the tissue contraction; the pledget being removed, the intra-nasal region should be gently sprayed clean with some mildly stimulating, but entirely unirritating, antiseptic formulæ; the following is a favorite with the writer:

℞.—Listerine (Lambert) . . . . . f℥iv.
Acid. boric. . . . . gr. xx.
Aq. rosæ } . . . . . āā f℥ij.—M.
Aq. dest. }
S.—Use in atomizer.

The Schneiderian membrane being carefully cleared of all adherent mucus and dislodged epithelial elements, a powder somewhat like the follow-

ing should be insufflated into the region of the infundibulum:

R.—Morphinæ sulph.	gr. vj.
Atropinæ sulph.	gr. j.
Bismuth. subcarb.	ʒijss.
Acaciæ pulv.	ʒjss.—M.

This formula must be carefully *bolted* into an impalpable powder. From two to four grains are to be used at each insufflation in the case of adults, much less when used in the case of children; four grains representing a full therapeutic dose of atropine.

In mild cases frequently no further treatment will be called for, or if somewhat severe in character, one or more daily repetitions will cure the case. Attention to the condition of the digestive tract is, of course, always called for, and a mild cathartic may be given. The bromides of potassium and sodium given in large doses, three to four drachms in the first twenty-four hours, and two drachms *per diem* subsequently, have often had an admirable effect on this condition in my hands.

Where deformity is evident and the pain great, more energetic measures will be called for. In addition to the intra-nasal applications I invariably order atropine sulphate internally, $\frac{1}{480}$th of a grain, every hour for sixteen hours, or until the throat is very dry. If there is decided tumefaction in the region of the sinus externally, a blister of cantharidal collodion should be placed over the frontal sinus or just above it. The symptoms may be expected to abate in twenty-four hours under this treatment, especially if the patient can be confined to the house. Without treatment even the mildest class of cases are exceedingly apt to go on to suppuration, the duration of pain and deformity occasionally being from two to three weeks.

The treatment of pus accumulations in the frontal sinuses has heretofore been usually of a severely heroic character, consisting of opening the anterior wall with a trephine, and frequently in addition passing a rubber drain through the external cut and through a counter-opening into the nose. In several works on diseases of the nose, which are regarded as classics, the writers speak, as a matter of course, of opening the brow sinuses through the nares, but none, so far as I am aware, gives any detailed account of methods nor reports any cases. The operation is regarded by the writer as one of extreme difficulty and much danger; trephining the anterior plate, at least, as a preliminary step is much to be preferred.

Lately Jurasz has reported several cases in which he was able to introduce a fine metal probe into the frontal sinuses through the infundibulum, thus opening a drainage canal for the catarrhal or purulent products to escape.

Trephining is, in my opinion, called for with extreme rarity in this affection; the resulting cicatricial deformity is great, and the dangers of sepsis largely increased; marked constitutional or cerebral symptoms can only justify its performance. If decided on, it must be done under the most rigid antiseptic precautions. Opening the infundibulum by even the most skilful manipulation of any probe, seems to the writer a most unscientific and dangerous procedure; any surgeon familiar with the intra-nasal region knows how exceedingly ill the Schneiderian mucous membrane endures mechanical irritation, and attempted dilatation of the infundibulum, even when possible, seems more likely to produce additional inflammation and stenosis of the canal than to give exit to pus. If the above method of procedure is consistently carried out, even pus accumulations will be discharged through the infundibulum, and a cure without operation or deformity result.

As above mentioned, many cases of chronic rhinitis, especially those in which the catarrhal tendency is particularly marked, suffer from severe congestion of the frontal sinuses with brow pain and much local discomfort. Very frequently these "catarrhal headaches" can be permanently relieved by proper treatment of the naso-pharynx without special attention being directed to the inflamed sinuses. If drainage from the infundibulum is interfered with by either vascular or fibrous intra-nasal swellings, they should be "tacked down" by Bosworth's method, and the planes of drainage brought into a normal condition, when a cure will result.

The following slight modification of Bosworth's technique is used by the writer in binding down hypertrophies for this and other purposes. A small cotton tuft saturated, but not dripping, with a five per cent. solution of cocaine muriate is placed in contact with the area to be operated upon, and allowed to remain for from four to eight minutes; tight contraction of the tissues is the result. A recently made, fully saturated solution of chemically pure chromic acid is then to be used in the following manner: a light, steel cotton-carrier, such as is used in ear work, is to be tightly bound at its extremity with a tuft of cotton, which when wound on the probe must not be above two millimetres in diameter, or more than one centimetre long. This pad being saturated with the acid, and carefully mopped with dry cotton until dripping is impossible, is to be carried, under full inspection, to the point of greatest hypertrophy (decided upon *before* the cocaine was applied), and held firmly in contact with the mucous membrane for at least twenty seconds.

Great condensation of the turbinated tissue at the point of contact results, together with a slough of varying, but always shallow, depth; the ultimate and speedy effect being to bind down firmly and

permanently the offending mass of tissue. A strong solution of bicarbonate of sodium should always be at hand, and if the acid show any tendency to spread, it must be liberally mopped over the seat of the eschar. Two or three "tackings" will nearly always assure good infundibular drainage, and along with general intra-nasal applications and bromides internally will, in almost all cases, rapidly cure the frontal headache.

The "catarrhal tendency" calls for treatment by regulated bathing, scientifically directed open-air exercise, proper clothing, and the administration of strychnine sulphate in progressive doses; the *gouty diathesis* will be found with extreme frequency in this condition, and advanced *neurasthenia* is frequently causative of the "catarrhal tendency," and will call for appropriate therapeutic measures. Leaving the complicated relationship for future consideration, it has been my experience that a very aggravated catarrhal diathesis is very frequently associated with *irritable heart*, a "cardiac explosion" almost always following or preceding a "cold."

Chronic purulent inflammation of one or both frontal cavities is certainly an exceedingly rare disease in the neighborhood of Philadelphia, and vague accounts of its occurrence and complicating influence in "nasal catarrh" must be taken *cum grano salis*. The symptoms complained of by probable cases of this disease are those already detailed in an aggravated form.

The prognosis is generally very unfavorable owing to the intractable nature of the causative nasal disease.

As to treatment, it may be confidently stated that if the nasal inflammation can be controlled and the infundibulum kept patulous, the frontal symptoms will cease. In a case of advanced atrophic rhinitis with the usual pharyngeal, laryngeal, and bronchial complications, now under treatment by the writer, in which a certain amount of purulent inflammation of both brow sinuses certainly existed, complete relief was gained by the repeated use of the faradic current; the positive pole being placed well up in the naris in the region of the infundibulum, and the negative over the brow of the corresponding side; careful and long-continued treatment of the *rhinitis cirrhotica* being, of course, persisted in, the methods followed having already been described by me in THE MEDICAL NEWS. Blisters over the frontal cavities have also yielded good results in my hands in these cases; and bromides, iodides, and ammonium chloride are valuable in selected cases.

In conclusion, it cannot be too emphatically stated that all the inflammatory diseases of the frontal sinuses, above noted, are wholly dependent on intra-nasal conditions, and the good results of treatment will be in direct proportion to the success obtained by nasal therapeutic measures.

49 NORTH SEVENTEENTH STREET,
PHILADELPHIA.

CASE OF ABSCESS OF LIVER; ASPIRATION; DEATH.

BY HENRY M. FISHER, M.D.,
PHYSICIAN TO THE EPISCOPAL HOSPITAL, PHILADELPHIA.

WILLIAM D., aged thirty-seven, married, English, cloth-finisher, was admitted to the Episcopal Hospital, November 6, 1888.

Patient stated that his health had always been good, but that eight weeks before his present admission to the hospital he began to have pains in his legs, back, and chest. Two or three weeks later, in consequence of the abdominal pains and obstinate constipation from which he suffered, he applied for admission to the Episcopal Hospital. Under treatment his pains diminished, however, and he left the hospital after a fortnight's treatment, but soon returned in consequence of an aggravation of the pains, and was first seen by me about three days after his readmission.

He had had no vomiting and no anorexia. Three weeks before his readmission he had noticed a swelling of his legs and abdomen and that his skin had a yellowish tinge.

Upon admission he had marked jaundice and there was œdema of the lower extremities, and apparently slight ascites. Liver dulness extended in the mammary line from the fourth interspace six inches, and the lower edge of the organ was distinctly felt in the median line three inches above the umbilicus. Abdominal veins were prominent and much tympanitic distention of the intestine. There was well-marked bulging in the right hypochondrium, and over the area, where the bulging was, marked pressure caused pain, while pressure over other portions of the abdomen did not appear to cause much discomfort. Bowels very much constipated. Ordered a muriatic acid mixture.

November 14. Increased bulging and fluctuation being discovered, Dr. Hopkins aspirated with a capillary trocar about two inches below the costal margin in the right hypochondrium and drew off five ounces of blood-stained pus. Five hours later, patient had a large chalky movement of bowels.

Ordered aromatic sulphuric acid, gtt. xv t. d., and quinine grs. xvj daily.

15th. Dr. Hopkins drew off with the aspirator eighty-four ounces of blood-stained pus. The aspirator canula was allowed to remain in the wound and the cavity was ordered to be washed out twice daily with Thiersch's solution. After the operation a great deal of clear bile and blood-stained pus drained away.

16th. Patient began to cough last night, and this morning has marked dyspnœa. Respiration 40. Marked dulness on percussion over lower third of right chest, with tubular breathing. Impaired resonance over lower fourth of left chest also, and breathing over this area somewhat bronchial in

character. Free discharge of bilious, grumous pus from the wound. Ordered carbonate of ammonium grs. x every two hours, and whiskey, twelve ounces daily.

22d. Impairment of resonance over lower third of right chest continues, and some subcrepitant râles are heard at the junction of the middle and lower third of the right chest. Dyspnœa has diminished, but patient is weaker and greatly emaciated. Has been taking for three days fel bovis, grs. x, extract. pancreatis, grs. v, ter in die. To-day ordered in place of carbonate the muriate of ammonium, grs. xx t. d. Passages clay-colored, and patient has a dusky hue.

The drainage tube having come away Dr. Hopkins replaced it by a larger rubber tube, and found that a sound passed easily five and a half inches into the abscess cavity. In spite of this, drainage is not satisfactory, as in injecting the cavity only a little grumous discharge is brought away. Appetite not markedly impaired.

From this time patient became progressively weaker. Large amounts of bloody and bilious pus and almost pure bile drained away.

On the morning of the 28th he was unconscious; he died in the afternoon of this day, just two weeks after the first puncture of the liver had been made.

Post-mortem examination, thirty hours after death. Body extremely emaciated. Decomposition had already begun.

Heart. Tissue friable, valves competent. Both auriculo-ventricular valves contain chicken-fat clots.

Lungs. Both lungs very much congested; right intensely so at its lower half, and shows very numerous hemorrhagic infarctions, but there is no pneumonic consolidation. Lobes of right lung glued together by recent adhesions. Right diaphragmatic pleura very much thickened by the deposit of lymph.

Peritoneal cavity contains a considerable quantity of blood-stained serum. Transverse colon glued to omentum by adhesions, and the lower end of the spleen is also adherent to the colon. Mucous membrane of large and small intestine throughout congested, and near the ileo-cæcal valve the colon shows very intense injection, and mucous membrane appears eroded in places, but no well-marked ulcerations are anywhere seen.

Liver extends from fourth interspace in the mammary line, to a point two and a half inches below the costal margin. Its tissue is stained with bile and is friable. There is a well-marked concave depression of its anterior surface. Upon section, a considerable amount (perhaps one pint) of grumous, blood-stained pus is evacuated, and it is then found that the tissue of both lobes has been largely undermined by an enormous abscess, fully one-third of the substance of the organ having been eroded in the ulcerative process. The abscess cavity is about five inches in length from above downward, extending from a point two inches from the upper margin of the liver to a point about one inch from its lower margin, and is about eight inches in its transverse diameter. A bridge of tissue, about half an inch in thickness bounds the abscess anteriorly. The abscess cavity contains numerous shreds of false membrane, but no marked evidences of commencing cicatrization are anywhere seen. *Gall-bladder* empty; its mucous membrane shows inflammatory thickening, and the cystic duct communicates directly with the abscess cavity. In separating the liver from its adhesions to the duodenum, the common gall-duct was unfortunately cut away, and its exact relations to the abscess could not be determined. Apparently it had been completely occluded by bands of organized lymph.

This case does not, it is true, throw any new light on the causation of hepatic abscess in general. There are, however, abundant grounds for considering all cases of hepatic abscess to be the result of septic infections. The only difference, as it seems to me, between the *pyæmic* and the *tropical* abscess of the liver so called is, that in the first the septic material expends its energies upon the liver as well as upon other organs, whereas in the tropical abscess the liver alone may be involved. In the case I have just reported, the liver, a portion of the right lung, and the adjacent portions of the peritoneum and pleura were involved. And the starting-point of all such suppurative inflammation in the liver, except in those rare cases in which the abscess is the result of direct violence, is undoubtedly either the intestine or gall-bladder.

Of course, where the mucous membrane of the intestine is actually ulcerated, as in typhoid fever and dysentery, poisonous germs might be supposed to gain freer access to the portal circulation than where it is either intact or simply eroded.

That such poisonous germs do actually exist in the intestine, not only in cases of acute febrile disease but also in cases of chronic enteritis and entero-colitis, has been proved. Now, in the case reported, there were evidences of chronic entero-colitis in the thickening and roughening of the mucous membrane of the whole intestinal tract. When constipation accompanies intestinal catarrh, as it appears to have done in this case, the danger of absorption of septic germs would necessarily be very greatly increased. The danger would, of course, be still further increased by privation, the eating of badly cooked, indigestible food, and, above all, by the drinking of impure water.

That tropical heat is not always and necessarily a factor in the production of the so-called "tropical" abscess, is shown by the fact that the disease appeared to have developed during the prevalence of cool autumn weather; and only so far as a high temperature favors the propagation of many poisonous germs can it, I believe, be considered to hold a causative relation to abscess of the liver.

As Dr. Osler has recently pointed out, we must dismiss from our minds the impression that abscess of the liver, the "tropical abscess" of the books, is, in our climate, a rare disease. The case reported is

the third that has been treated at the Episcopal Hospital in the last three months. The fact of their occurring soon after a severe epidemic of typhoid fever in a section of the city imperfectly provided with sewers, and which draws its main water supply from a notoriously impure source, certainly strengthens very much the theory of a septic causation.

With regard to operative interference in such cases, my experience is in accord with that of others, that mere aspiration is useful only as far as it tends to prevent the bursting of the abscess into some important cavity, like that of the peritoneum, when the result of such bursting would almost necessarily be quickly fatal.

Of course, if the existence of a small abscess in the liver can only be determined early, thorough evacuation might be made with the aspirator, but *small* collections of pus rarely are, and, probably, rarely can be determined with accuracy, unless they happen to be close to the surface of the organ, unless the exploring needle is used. The use of the exploring needle in a doubtful case would seem to be perfectly justifiable.

But where the abscess is of considerable size, free incision would seem to offer the only hope of free drainage and subsequent cicatrization. Where adhesions have not already been formed sufficient in extent to prevent leakage into the peritoneal cavity, it should be the surgeon's aim, I think, to secure adhesive inflammation by cauterization of the preliminary incision first, and to open the abscess cavity only when a protective wall of lymph has been thrown out.

But this may involve a delay of several days, and if marked symptoms of septic absorption supervene before the adhesions are formed, then, as a temporizing measure, aspiration with a capillary trocar may be resorted to.

919 WALNUT STREET, Dec. 20, 1888.

NOTE ON THE TREATMENT OF TONSILLITIS BY SALICYLATE OF SODA.

BY W. A. DEWOLF SMITH, M.D., L.C.P.&S. QUE.,
OF NEW WESTMINSTER, B. C.

ABOUT the 15th of September last, I was consulted by Mr. W. H. F. about his throat. He had been a sufferer from repeated attacks of tonsillitis, and on this occasion his throat presented the usual symptoms of that disease.

As on former occasions, various remedies, such as guaiacum, had been tried without any beneficial results, the patient was anxious to get the thing over with as soon as possible. He was accordingly made to steam the throat frequently, and had continued this for three or four days without any advantage, when my attention was directed to a note in THE MEDICAL NEWS of June 2, 1888, on the treatment of tonsillitis by salicylate of soda. I accordingly put the patient on a mixture containing salicylate of soda, with the gratifying result of finding in a day or two the soreness and swelling disappear from Mr. F.'s throat.

After a few days one of his tonsils again enlarged, although there was no pain, and I feared even then that an abscess would form as usual, but perseverance in the use of the salicylate met with its reward. The swelling disappeared in a couple of days and has not troubled him since.

The drug was given in the same dose and manner as recommended in the note referred to above.

MEDICAL PROGRESS.

A Case of Sulfonal Poisoning.—DR. BORNEMANN records in the *Deutsche med. Zeitung*, No. 95, the following case of sulfonal poisoning: A physician, addicted to the morphine habit, which he had acquired in trying to overcome headache during the past twenty-eight years, and who had visited ten "cure-institutions," came at last into the institution of Dr. Bornemann. On the evening of the 10th of May, the patient took for the first time thirty grains of sulfonal, without effect, and it was only after a second dose of fifteen grains, and one-third of a grain of morphia subcutaneously, that he fell into a sound sleep of eight hours duration. May 11th, forty-five grains of sulfonal were given at bedtime, without morphia; he slept till morning. May 12th, one-third of a grain of morphia, at bedtime sixty grains of sulfonal; no sleep. During the same night (1 A.M.), thirty grains of sulfonal; no sleep. Patient left his bed, acted like a drunken man, and fell several times; and when attempting to take hold of an object, he would miss it. Pupils contracted. On the morning of May 11th, patient slept four hours. Even while in bed, he believed himself drunk. On the same evening, he complained of the sensation of having two heads, two pairs of arms, and double vision. From that time on, the administration of sulfonal was discontinued, although patient kept constantly asking for it. It was not until May 18th that all apparent symptoms of poisoning disappeared.—*Wiener med. Presse*, No. 50.

Treatment of Ophthalmia in the Newborn.—At a recent meeting of the Society of Medical Science, of Lyons, this subject being under discussion, DR. GRANDCLÉMENT spoke very highly of nitrate of silver and sublimate, which he stated are the most powerful antagonizers of the gonococcus of Neisser. In support of this statement, he called attention to the experiments of Dr. Kreiss, of Vienna, who had arrived at the same conclusions.

Hence, the treatment of ophthalmia of the newborn should consist in cauterizing every twelve hours the palpebral conjunctiva and the conjunctival cul-de-sac with the following solution:

℞.—Nitrate of silver . . . 3 grains.
Distilled water . . . 1 drachm.—M.

Between the intervals of cauterization, the eyes are to be washed with a strong solution of sublimate, or with

lukewarm water, or with a ten per cent. solution of bicarbonate of soda, as practised by Dr. Castellan.—*Revue de Thérapeutique*, Dec. 6, 1888.

Urinology of Neurasthenia.—DR. DANA, from a study of the urinology of neurasthenia, deduces the following conclusions:

1st. The importance of classifying neurasthenic types.

2d. The existence of different conditions of the urine, corresponding to different forms of neurasthenia.

3d. The existence of a functional inadequacy of the kidney in certain types of neurasthenia.

4th. The greater frequency of heavy urines in irritative and diathetic forms of neurasthenia.

5th. The existence of a polyuria in certain forms of neurasthenia.

6th. The importance of recognizing these conditions by measuring and testing daily amounts.—*Cincinnati Lancet-Clinic*, Dec. 22, 1888.

Action of Phenacetin.—At a recent meeting of the Royal Academy of Turin, DR. PESCE reported the following results which he has obtained with phenacetin:

Phenacetin produces a marked and prolonged diminution of the temperature, leaving the patient, at the same time, in a stimulated condition. The fall and, later on, rise in temperature, is a slow and gradual one. With three-fourths of a grain at one dose, the temperature is generally reduced from 3½° to 5½° F. This fall does not, as a rule, produce any annoying or dangerous symptoms, save a general sweating. Phenacetin can be classified amongst the anti-rheumatics, in which disease it lowers the fever, removes the pain of the joints, and thus allows of freer motion. It will also be found of use in neuralgia, cephalalgia, migraine, and other irritating conditions of the nervous system.

As a rule, three-fourths of a grain doses will be found sufficient; if necessary, they may be repeated every two or three hours.—*Deutsche med. Wochenschrift*, Dec. 6, 1888.

The Diagnostic Value of the Tolerance of the Iodides in Syphilis.—DR. J. WILLIAM WHITE, in an article upon this subject, closes with the following conclusions:

1. Personal idiosyncrasy is so strong a factor in relation to the toxic symptoms produced by the iodides, that it quite overshadows any possible influence due to the existence of syphilis.

2. There are no satisfactory theoretical grounds for believing that syphilis in any stage prevents the production of iodism by a process of neutralization, and this is particularly unlikely to be true as regards the latter stages.

3. It is therefore most unsafe to base any diagnostic conclusion upon the presence or absence of toxic symptoms (iodism) after the administration of full doses of the iodides.—*Therapeutic Gazette*, December, 1888.

Painless Extraction of Teeth.—DRS. HÉNOGUE and FRIDEU, of Paris, state that the extraction of a tooth may be rendered painless by spraying the neighborhood of the external ear with ether.

The anæsthesia of the trigeminus so produced extends to the dental nerve, and thus renders the production of general anæsthesia needless.—*Popular Science News.*

For Sweating of the Feet.—

℞.—Salicylic acid . . . . . 3 parts.
Starch . . . . . 10 "
Talc. . . . . 87 " —M.

Or,

℞.—Salicylic acid . . . . . 2 parts.
Mutton tallow . . . . . 100 " —M.

Apply to feet.

(The last formula is used in the Prussian army.)—*Les Nouveaux Remèdes*, Dec. 8, 1888.

How to Accelerate the Growth of Bones in Man.—A novel suggestion is made by Dr. Schneller, of Berlin, for the purpose of accelerating the growth of the long bones, with a view to the prevention or rectification of deformities arising from the unequal length. It is well known that irritation of the diaphyses of long bones brings about an increased blood supply, which, by increasing nutrition, stimulates bone formation, while lesions of the epiphyses produce an arrest of development, at any rate for the time being. Ollier is reported to have remedied the deformity resulting from a short radius by destroying the intermediary cartilage of the ulna, and putting a stop to further growth. Dr. Schneller has improved on this rather risky procedure. He inserts a nickel iron spike into the diaphysis of the short bone, allowing it to remain *in situ* for nine days, when he withdraws it and allows the wound to heal. When cicatrization has taken place he applies an elastic band moderately tightened, higher up the limb, so as to increase, by stasis, the quantity of blood in the limb. In all the cases treated by this method, the difference in length of the bones rapidly decreased, and atrophied muscles acquired fresh functional activity and became larger. He mentions a case of genu valgum in which he succeeded in restoring symmetry and remedying the preëxisting laxity of the ligaments. —*Medical Press*, December 12, 1888.

Treatment of Eczema.—The treatment, which consists in the isolation of each pustule, is proceeded with as follows:

1st. *External medication.* Continue the application of soft poultices until the crusts covering the pustules have become detached; then cover each of the ulcers with Vigo's plaster, which is to be left on for three days, unless previously detached through the process of suppuration. Under this covering, budding and cicatrization will take place rapidly.

2d. *Internal medication.* The diet to consist of rare meats, fresh vegetables, and plenty of wine. In most cases, the addition of iron and quinine will be beneficial. —*Revue Gén. de Clin. et de Thérap.*, October 25, 1888.

Buckthorn for Toothache.—The peasants of the southern part of Russia have the habit of overcoming an attack of toothache by gargling with a decoction of buckthorn (Rhamnus catharticus). DR. GRETCHINSKY, having prescribed gargles of this decoction, to be repeated every five minutes, observed that the toothache was dispersed within thirty minutes, but in its stead was left a sensation of itching and a dull pain. To overcome this phenomenon entirely, the author ordered the insertion of small cotton pledgets saturated with this preparation. The result was excellent. To prepare this decoction, put one

hundred parts of the bark into so much boiling water that, after filtering, two hundred parts of the water remain, to which add ten parts of alcohol.—*Druggisten Ztg.*, No. 44, 1888. *Les Nouveaux Remèdes*, Dec. 8, 1888.

Diuretic Action of Mercurial Preparations.—DR. WLADYSLAW BIEGANSKI, in a thesis upon this subject, concludes with the following *résumé:*

1. The action of calomel and other mercurial preparations is a diuretic one; under its influence the secretion of urine is augmented.

2. This action is observed to the greatest advantage in the œdema of cardiac origin.

3. The diuretic action is observed, no matter what preparation or method of administration is used; the most marked action, however, is noticed after subcutaneous injections, less so when given by mouth, and the least marked when used in the form of inunctions.

4. Small doses of mercury do not produce diuresis, only large doses.

5. The diuretic action of mercury is probably due to its irritant action upon the kidneys.—*Archiv f. klin. Med.*, Bd. 42. *Centralbl. f. d. ges. Therapie*, December, 1888.

An Ointment for Ciliary Blepharitis.—

℞.—Ointment of zinc, White precipitate . . āā 7½ grs.
Vaseline . . . . . ʒiij.

Or

℞.—Oil of birch, Oil of eucalyptus . . āā 7½ grs.
Vaseline . . . . . ʒiij.—M.

Rub some into the borders of the eyelids three times daily.—*L'Union Médicale*, December 8, 1888.

Treatment of Syphilis with Hypodermatic Injections of Sublimate in Olive Oil.—Of late, many authors have written about the subject of hypodermatic injections of mercury in the treatment of syphilis. DR. CRUYL has tried the method in numerous cases, and adds his experience to the unsatisfactory results of Scarenzio, Balzer, and Neisser, which are that injections thus made cause irritations, indurations, and abscesses. It was to avoid the latter that the author tried the injections of the metal with olive oil as a medium, with the results, that out of two hundred injections thus made, not one was followed by induration or pain.

The mode of procedure is as follows: The needle of the syringe having been rendered thoroughly antiseptic, is filled with the injecting fluid, and forced deep into the subcutaneous tissue in the dorso-lumbar region.—*Revue Gén. de Clinique et de Thérapeutique*, December 6, 1888.

On the Hypodermatic Use of Morphia.—DR. EDWARD O. DAILY, M.A., M.R.C.P., in a thesis upon this subject, concludes with the following well-founded remarks:

1st. Never inject a larger quantity than one-sixth of a grain in a person unaccustomed to morphia.

2d. Never give an injection of morphia to a person suffering from hysteria.

3d. Never give an injection to a person cured of the morphia craving.

4th. Never hand over the syringe to the patient himself.—*Medical Chronicle*, December, 1888.

Faradic Electricity in Hysteria and Epilepsy.—DR. DIDIER, in a paper upon this subject read before the National Society of Medicine of Lyons, presented the following conclusions:

1st. Of all the means employed heretofore to arrest and possibly to abort an attack of hysteria, faradic electricity is without doubt the best. It has arrested attacks of convulsive hysteria in all the cases in which it has been tried, and in two cases of hysterical epilepsy. Further, this method possesses great advantages over compression of the ovaries, which, if too often repeated, may be followed by grave results.

2d. Faradization permits, in difficult cases, of a diagnosis being made between epileptic and hysterical attacks, as in the former the attack is not modified, while in the latter it is arrested.

3d. By means of faradic electricity, one can distinguish in a patient suffering from two neuroses, at one time, the symptoms which belong to hysteria since they are arrested in their course, and epileptiform manifestations which run their complete course, notwithstanding the efforts to arrest them.

4th. The mode of operation consists in applying the electrodes of a faradic current of moderate intensity along the course of the aura—that is, along the epigastric region and to the anterior portion of the neck. Application is then to be renewed only during the tonic or clonic period; one electrode is then placed to the neck and the other is taken in one hand, or else both electrodes are taken in both hands.

5th. Besides possessing an abortive power over the hysterical crisis, faradization has at the time other curative effects, which are too well known to need mentioning here.—*Lyon Médical*, December, 1888.

New Operation in Empyema.—DR. M. S. SUBBOTIN, of Kharkoff, describes, in the *Vrach* (No. 45), a new operation he has devised for opening the thoracic cavity in empyema, with the view of obviating the danger arising in Estlander's operation, and in the modifications of it practised by Schede and Sprengel from the extensive raw surface which is necessarily allowed to remain in contact with the purulent discharge. Prof. Subbotin suggests that in cases in which the lung itself is free from disease, the unyielding nature of the thoracic wall may be overcome without the removal of ribs by simply cutting them through; also, that if a rib is divided in two places, and the intermediate portion removed, the chest-wall will become flexible, and may be pressed inward, so as to lessen the cavity of the empyema, and in this way assist to put an end to the suppuration. After thinking out a plan based on the above considerations, he determined to apply it in operating on a case under his care in the Kharkoff clinical wards last June. The patient having been chloroformed, an incision was made along the seventh rib, which was then stripped of its periosteum, and excised to the extent of seven or eight centimetres. An extensive opening was here made into the pleural cavity. After the pus had been evacuated, the cavity was carefully cleansed, and the opening well covered with gauze, and a gauze compress applied. An incision was then made along the border of the pectoralis major, about five centimetres in length, exposing the sixth, fifth, and fourth ribs, and these were cut away (the periosteum not being left) with forceps until the rib became movable.

Another incision was then made in the line of the posterior fold of the axilla, exposing the same ribs, which were again divided as before; the wounds were then sutured and dressed with gauze, a large, thick pad of the same substance being applied outside, with a good compress bandage round the thorax. The upper wounds were kept from communication with the empyema. When, after a few days, the intra-thoracic wound was dressed, a drainage tube was put in. The case recovered, but three months after the operation there was still a small sinus which continued to discharge.

The advantages claimed by Prof. Subbotin for his operation are: the small raw surface which is left in contact with the purulent matter; and the firm but movable portion of the thoracic wall which can be pressed inward by bandaging, so as to diminish to a considerable extent the size of the cavity.—*Lancet*, December 15, 1888.

Iodol as an Internal Remedy.—DR. DAUTE CERVESATO, of Padua, gives in the September number of *Lo Sperimentale*, an account of his observations on the internal administration of iodol, the first of which were made upon scrofulous patients, in whom the remedy acted very favorably in whatever form it was given. It acted best when the lymphatics had not as yet undergone purulent infiltration. In scrofulous affections of the mucous membranes, such as scrofulosis of the nose, or scrofulous otitis, the beneficial action was but limited, and still more limited in scrofulous affections of the skin. The author administered the iodol to children in daily doses of 8–15–23 grs., continued from two to three months, with good results. The internal administration was supplemented by external inunction of an iodol salve (1 part to 15 of vaseline), or by iodol insufflations. The remedy was well borne; the appetite and digestion generally improving.

In diseases of the respiratory organs, the drug was given in from 15 to 45 gr. doses, in conjunction with the inhalation of the following solution:

Iodol, 1 part dissolved in 5 parts of heated alcohol, filtered; 10 parts of glycerine, heated to 60° or 70° F., were then added, and before the solution cooled, 10 parts of water were also added. For each inhalation, of which two or three were taken daily, 4 drachms of this solution suffice.

In the first stages of laryngeal tuberculosis, great improvement was observed, but still greater beneficial results were obtained in acute and chronic laryngitis. In tertiary syphilis, the specific action of this drug was well marked. Two cases of syphilitic suppuration of the roof of the mouth and syphilitic ulcers of the pharynx, healed under the internal administration and external applications of iodol, continued for two months. Internally the iodol was administered in from 15 to 45 gr. doses, while locally the following was applied:

℞—Iodol	15 grs.
Alcohol	ʒjv.
Glycerine	℥j.

In none of the cases treated were any symptoms of iodism observed.—*Wiener med. Presse*, No. 49, 1888.

Therapeutic Action of Hyoscin.—DR. KNY, of Strassbourg, has tried the muriate of hyoscin (Merck) in a number of cases. The subcutaneous administration was soon discontinued. Taken by the mouth the results obtained were more satisfactory. Eighty-eight patients of the Strassbourg Insane Asylum were given 3000 single doses; after the lapse of one to two hours, a six to eight hours sleep was obtained in 82.2 per cent. of the cases. Most failures were observed in cases of insomnia without motor excitement, while the best results were obtained in insomnia accompanied with marked motor phenomena, as, for example, in mania and paralysis. The dose was from $\frac{1}{120}$ to $\frac{1}{84}$ gr. As a rule, patients soon became accustomed to this amount, necessitating an increase in the quantity administered, which was gradually increased to $\frac{1}{72}$ gr. the maximum dose. In only one case did the remedy prove to be inactive.

The disagreeable symptoms produced by hyoscin are dryness of the throat and great thirst, while its advantages are absolute tastelessness and great solvency and cheapness.

Attacks of recent mania were cut short by this remedy. In paralysis agitans and multiple sclerosis, it proved to be a palliative remedy. Digestive disturbances, of short duration only, were noticed in some cases.—*Deutsche med. Wochenschrift*, December 6, 1888.

Ocular Antisepsis.—*Oxycyanide of mercury* is a very stable salt, very soluble, a non-acid, does not precipitate albumin, and attacks metals but slightly. Patients bear it better than the bichloride, and it acts better upon the *micrococcus aureus* than the latter. DR. CHIBRET employs this salt in solutions of 1 to 1500, which he prescribes under the form of eye-baths, because the effect is more powerful when its direct contact with the mucous membrane is prolonged. After operations for cataract he also employs it for irrigating the anterior chamber, having previous to the operation allowed his instruments to rematn in the solution for several hours.

Hirschberg, of Berlin, employs a sublimate solution of 1 to 5000 as the excipient of his collyria for a cataract case and Mayen uses a solution of 1 : 2500 for a wash in the same operation.—*Bulletin gén. de Thérapeutique*, November 20, 1888.

Creasote in Chronic Lung Affections.—DR. SOLTMANN reports having administered creasote in eight phthisical cases with satisfactory results. He prescribes:

℞.—Creasote	gtt. 4–14.
Spirits of ether	gtt. 6–12.
Water.	℥1½.
White sugar	℥2½.

One teaspoonful every two hours, the entire quantity to be taken in two days.

Increase of appetite and body-weight and a disappearance of the lung symptoms were noticed in most of his cases.

Parenchymatous creasote injections in phthisis pulmonalis (a 3 per cent. oil solution) were tried by DR. ROSENBUSCH with good results. The injections were made in the two intercostal spaces or in the supra-spinata fossa.—*Deutsche med. Wochenschrift*, December 6, 1888.

Operation for Excision of Eyeball.—DR. COPPEZ, of St. John's Hospital, Brussels, publishes, in the current number of *La Clinique*, the details of a method of enucleation which he considers to be easier and simpler than the methods of Bonnet and of Tillaux now in use. The

patient having been anæsthetized, and the eyelids separated by a speculum, a thread is passed transversely through the cornea by means of a curved needle; the ends of the thread are knotted, and the loop held in the left hand. By traction on this loop the eye is drawn slightly forward, and with a curved scissors the conjunctiva is divided close to the corneal edge. The subconjunctival tissue is then torn through, and the tendons of the recti muscles come into view and are divided; next, the tendons of the oblique muscles, and, finally, the optic nerve. Dr. Coppez claims for his operation that it may be practised with fewer instruments—a curved needle, scissors, and a speculum; that the optic nerve may be divided more directly and at a greater depth in the orbit, which, in the case of malignant tumors, is of great importance; and that the consequent hemorrhage is less considerable than in the ordinary operations. The only objection to it, he thinks, is that the globe might be rendered flaccid by the escape of the aqueous humor through the needle-holes, but that is of little importance.—*Lancet*, December 15, 1888.

Salol in Skin Affections.—DR. EDMUND SAALFELD, of Berlin, reports successful results obtained with salol in the treatment of various skin affections. According to his experience, a 5 to 8 per cent. ointment of salol with vaseline or with balsam of Peru and cold-cream, acts better than the ordinary ceratum plumbi subacetat., or the ointment of salicylate of soda.

Remarkably prompt results were obtained in some cases of impetigo contagiosa. One patient suffering from sycosis simplex, which had spread over the entire face and neck, obtained marked relief from salol ointment, to which Dr. Saalfeld subsequently added sulphur and carbonate of potash, with the satisfaction of seeing the disease entirely disappear.—*Deutsche med. Wochenschrift*, November 22, 1888.

Pastes in Dermatology.— Since Lassar introduced into dermatological practice the use of salicylic paste, the utility of pastes in irritable conditions of the skin has been abundantly proved. DR. GRUENDLER, of Hamburg, has recently (*Monatsh. f. Prakt. Derm.*, No. 20) made some interesting experiments in Dr. Unna's laboratory on the relative capacity for the absorption of water inherent in various powders, which might be used in the preparation of these pastes. He found that carbonate of magnesia had remarkable qualities in absorbing water, and therefore ought to be an excellent ingredient for the formation of a paste. Unfortunately, however, pastes made of a mixture of fat and carbonate of magnesia do not possess the proper consistence. When, therefore, this highly absorbent quality of carbonate of magnesia is desired, it is advisable to combine it with the other powders commonly used. For example, fifty parts of oxide of zinc or starch may be mixed with ten parts of carbonate of magnesia, and the whole rubbed up with fifty parts of fat to form a paste, or as a simple absorbent powder it may be very conveniently used mixed with oxide of zinc.—*British Medical Journal*, Dec. 15, 1888.

Paralysis after Pneumonia.—DR. B. H. STEPHAN mentions in the *Weekblad* twenty-five cases of pneumonia which came under his observation, in which he thinks two points are of special importance. The first is the high death-rate, nine out of twenty-five patients, or thirty-six per cent., dying; the second point is the adynamic or asthenic character of the pneumonia, in which the brain symptoms predominated and the pulmonary affections were secondary. Dr. Stephan thinks that these considerations, and the complications of a typhoid or bilious nature which may arise, point to the conclusion that pneumonia, under certain aspects, must be regarded as "specific fever." He believes that adynamic pneumonia is more frequent now than formerly, which leads him to the conclusion either that the constitution of individuals predisposed to pneumonia must have altered, or that the causes of pneumonia itself are changed. Dr. Stephan considers it not improbable that the first hypothesis may be correct—namely, that the frequency of neurasthenia in the present day shows the weakening of the cerebro-spinal system. A surgeon told Dr. Stephan he had practised bloodletting with the most successful results for thirty years at Drente, but that of late, in Holland, he had become very shy of doing so in inflammatory affections of the chest. The question suggests itself whether former practitioners acted wrongly in their treatment of pneumonia, or whether the physical condition of patients is now altered.

Out of the twenty-two adult patients treated by Dr. Stephan, twenty were men exposed to very decided changes of temperature. The fact is undoubted that more men than women are attacked, and Dr. Stephan considers it very probable that chills and infection are directly connected. The theory that bacteria are a cause of pneumonia appeared to him a plausible explanation. If the pneumococci are only waiting an opportunity to attack us, then the hypothesis that a lesion in the lung is favorable to their development is intelligible. What may happen in the case of traumatism may happen in the case of a chill. In a healthy condition the body is entered by countless bacteria, which are kept in check by the normal resisting power of the healthy tissues, but as soon as the normal equilibrium is upset, one or other of the organs is attacked and becomes the sport of these bacteria.

Dr. Stephan mentions two cases of paralysis ushering in pneumonia; the first was a man, who was suddenly attacked with apoplectic symptoms. In two days the whole of the right lung was solid with pneumonia; the pneumonia ran a regular course, but the paralysis of the arm, leg, and facial muscles did not disappear completely for three months. In the other case, a child of two years, the pneumonia was preceded a few hours by strong convulsions, after which symptoms of meningitis became well marked; the lung disease followed, and the child died on the eleventh day. In conclusion, Dr. Stephan remarks that paralysis has sometimes occurred at the commencement, during the course, or at the end of an attack of pneumonia; and where there has been a necropsy, either meningeal symptoms have been found or else there were no macroscopic or microscopic lesions. The most probable explanation of the first category is that the pathological anatomical lesions rest on the extra-pulmonary localization of the pneumonia poison. In the second, the explanation probably is that the pneumonia poison, either directly or through the medium of the bloodvessels, occasions dynamic disturbances in the nerve-centres or nerve-trunks.—*British Medical Journal*, December 15, 1888.

THE MEDICAL NEWS.

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SATURDAY, JANUARY 5, 1889.

EYE SYMPTOMS AND CEREBRAL LOCALIZATION.

THE fact that, of the twelve pairs of cranial nerves, six pairs are concerned in supplying the eye and its immediate accessories, suggests, but inadequately, the importance of what are known as eye-symptoms in the diagnosis of cerebral disease. The minute differentiation and definite association of function here exhibited, as in convergence and conjugate deviation, in binocular vision, and the connection of certain particular portions of the retina with certain portions of the cerebral cortex, open great possibilities of accuracy and refinement in cerebral localization.

The fact that several of the nerve trunks in question run comparatively long distances within the cranium, after emerging as trunks from the brain mass, makes it almost certain that one or more of them will be involved in any considerable disease of the base of the brain, or its membranes. The palsies resulting from such involvement are very fairly understood, and by their grouping or association are very important in localizing the lesions causing them. Many well-reported cases of such palsies are on record, and available for present or future study; and as the anatomical basis of connection is obvious and generally understood, this kind of localization is well advanced. But when we come to the localization of lesions involving the cortex, the commissural fibres, or even the ganglia at the base of the brain, we find that the intelligent study of the subject is just beginning.

The really important literature of the subject consists of reports of only a few isolated cases that have been well studied, and a considerable accumulation of results obtained by physiological experiment, the value of much of which is yet to be determined. The important practical deductions to be based often on a single well-studied case are full of encouragement to the observer. It may well happen in the present state of our knowledge, that a single well-conducted autopsy, added to a careful observation of symptoms, will be enough to save one life, or even many lives. But a case to be of much value must be thoroughly studied, and by the aid of all the light obtainable from the records of predecessors in this direction. Because of its omissions all the older literature of brain diseases is worthless. And in this connection it should be mentioned that negative results of carefully applied tests may give just as much light as to the connection of lesion and symptoms as any positive results can give.

Attention to this subject has heretofore been too much confined to a few specialists, and the group of operators who will soon be spoken of as "cerebral surgeons." Mr. Henry R. Swanzy, of Dublin, in the "Bowman Lecture" for 1888, before the Ophthalmological Society of the United Kingdom, which is published in the London weeklies, places a good *résumé* of our present knowledge of the subject before the ophthalmic surgeons, who must frequently have opportunities of studying the eye-symptoms of brain disease, at times when their diagnostic significance is most certain. For it is usually the permanent symptoms to which most importance is to be attached for purposes of diagnosis; it is the palsy that remains long after an otherwise complete recovery from apoplexy, or the spasm that appears before the case is suspected to be one of cerebral degenerative change, that best localizes the mischief. These are commonly manifestations of the loss or impairment of function in the part directly affected, and hence are called the "direct" symptoms. When the morbid process is at its height, the part in which it is located is liable, by its reaction on other parts with which it is intimately connected, to pervert or hold in abeyance their function also; although the parts thus secondarily affected may, themselves, be perfectly healthy. In this way arise the symptoms which have been called "indirect," and which may greatly increase the difficulty of localizing the lesion. Swanzy proposes to call these latter "distant symptoms," rather than "indirect," which, he

agrees with Dr. Gowers in thinking, conveys a false conception of their nature.

The most common symptom of focal disease, derivable from the motor apparatus of the eye is conjugate deviation of the visual axes; which are turned toward the side of the lesion in paralysis, and from it in spasm. That a cortical centre governing this movement exists, cannot be doubted, but its location is not yet certainly ascertained. The difficulty in fixing it arises from the same condition as that which causes the frequency of interference with its function, and which robs its occurrence of any special significance; that is, from its wide connections and consequent liability to "distant" or "indirect" involvement. From our common and instinctive acts we would expect the centre for turning the eyes to one side would be connected more or less intimately with the centre for hearing, and all centres for touch, and even for motion for that side. The symptom may, however, be of importance in indicating the side of the lesion, when, as in coma, other symptoms cannot be elicited. The existence of other cortical centres, which we are as yet unable to localize, is indicated by a condition, in a sense, the opposite of conjugate deviation, in which one eye is turned downward and outward and its fellow upward and inward; or by paralysis of upward and downward movement alone, or by ptosis without other oculo-motor paralysis. Nystagmus, too, is of little value for localization.

As, however, we leave the cortex, and come to consider focal lesions of the basal ganglia and tracts, the localizing value of the symptoms increases. Thus, ptosis or other third nerve paralysis, partial or complete, with simultaneous hemiplegia affecting the opposite side, indicates disease of the crus cerebri; while paralysis of the sixth nerve, with simultaneous crossed hemiplegia, indicates a focal lesion of the pons. Isolated and complete paralysis of the third, fourth, or sixth nerves is almost always basal—that is, trunkal. In paralysis of the fifth nerve, the occurrence of neuro-paralytic ophthalmia points to disease involving the nerve trunks; its absence pointing rather toward the nucleus or the commissural fibres in the pons as the seat of the lesion. The state of the pupil has always attracted attention in cerebral disease, yet so imperfectly have the mass of cases been observed and recorded that we know scarcely as much of the significance of mydriasis and myosis as of other third nerve symptoms. Loss of the light-reflex has much the same significance in blindness that neuro-paralytic ophthalmia has in fifth nerve palsy, pointing to a trunkal and not a central lesion.

In hemianopsia we have a symptom which rivals in importance those affections of the motor centres for speech, and the various movements of the face and upper extremity, that have played such an important part in the history of cerebral localization. There is no centre in one-half of the brain for the opposite eye; indeed, it is at least uncertain if such a condition as a crossed amblyopia occurs, although good observers have described it. But the right half of the brain is concerned with the perception of objects to the left, and, therefore, is in connection with the right half of both retinas, and *vice versa*. Loss of function of one cortical centre or of the tracts connected with it, leads to inability to see anything situated to the other side of the visual axis, or homonymous hemianopsia, the only kind of half-blindness that is of frequent occurrence, or very general interest. In connection with it, the presence or absence of the light-reflex of the pupil when light is thrown on the blind half of the retina, tells whether the lesion is central or situated in the so-called optic tract. There can now be no doubt that the visual centre is situated in the occipital lobe; included mainly in the cortex of the cuneus and superior occipital convolution. At least, that this is the centre for form-vision. A few well-recorded cases indicate that the centre for color-vision is so entirely distinct that it can be functionally destroyed, causing, when the lesion is limited to one hemisphere, hemiachromatopsia, without serious impairment of form-vision. This centre for color-vision seems to be located rather in the posterior part of the superior and inferior occipito-temporal convolutions. Again, it is not impossible that there is a centre for the so-called light-sense, distinct from those for form and color. More than this, cases of incomplete hemianopsia would seem to show that even smaller subdivisions of the retina are represented each by its particular subdivision of the cortex.

The localization of lesions causing "mind-blindness," "word-blindness" or alexia, and "dyslexia" or inability to read more than a few words consecutively, because of a sense of dislike or disgust engendered by the effort, is as yet not sufficiently certain to make them of much practical importance; but the little we do know in this direction opens up a most inviting field for further

study. In the study of focal disease of the brain it is of great importance, as Swanzy points out, that not only shall symptoms be studied and recorded with the skill and accuracy of the specialist; but that the necropsy should be conducted with the greatest precision, and the examination of the brain, in all cases, entrusted to skilled pathologists and microscopists.

IN New York City, the Presbyterian Hospital has opened a large "annex," as it is called, to be used as an out-patient department. The Montefiore Home for men having chronic or incurable disease is completed. Both of the above are non-sectarian institutions.

At Bellevue Hospital the new training-school for male nurses is in operation, a class of twelve young men being the first to avail themselves of this newly established drill. At the Cancer Hospital, which has been hitherto wholly devoted to the treatment of females, it is proposed to complement its charitable work by an additional pavilion for males; this will be built and endowed by Mr. John Jacob Astor.

A large brewing interest, on Staten Island, proposes to construct a free Infirmary for its employés, among whom the sickness-rate is high, accidents are frequent, and the people, as a rule, improvident and inclined to fall back on their employers in times of disability. At Brooklyn, a North-German or Platt-deutsche hospital is under consideration, a considerable sum of money having been acquired for the purpose.

At Elmira a handsome little hospital has been given to the public by members of the Ogden and Arnot families.

From this it will be seen that, in New York State at least, the poor are not likely to suffer in the near future for the want of gratuitous medical service.

OUR excellent contemporary, *The Canadian Practitioner*, will be issued hereafter as a semi-monthly, under the same editorial management that has won for it a leading place in Canadian medical journalism.

THE case of sextuple birth reported to have occurred in Navarro County, Texas, which has been going the rounds of the papers, both lay and medical, and to which reference was made in our issue of December 15th, upon investigation, we learn, "originated in the fertile imagination of an ingenious reporter, and is fiction without the least foundation of fact." We are also further informed by a prominent physician in that locality, that no such incident has occurred there and no family of the name given in the newspaper report resides there.

DR. CHARLES V. CHAPIN, who has been Superintendent of Health of the city of Providence, R. I., since 1884, has now been elected to the additional office of City Registrar, to succeed Dr. E. M. Snow, deceased, who had held the position continuously since 1855.

THE following committee has been authorized to receive subscriptions in America for the "Langenbeckhaus," which is to be erected in Berlin as a memorial to the late distinguished surgeon whose name it will bear: Dr. von Herff, of San Antonio, Texas, chairman; Dr. Baumgarten, of St. Louis; Dr. Ferrer, of San Francisco; Dr. Emil Fischer, of Philadelphia; Dr. A. Jacobi, of New York; Dr. Löber, of New Orleans; Dr. Mendel, of Milwaukee; Dr. Salzer, of Baltimore; and Dr. Lange, of New York, secretary.

FROM a London letter to the *Medical Press* of Buffalo, we quote a curious illustration of the extent to which specialism has become popularized abroad:

"Shortly after coming to London I was invited, through the courtesy of one of England's most noted surgeons, to be present at one of his operations. During the operation a telegram was handed to him which he read and handed over to me. It ran thus: 'Can you recommend us a good surgeon for the elbow-joint?' The joke about the matter was that at the same time he was treating the ankle-joint of another member of the same family, a sister of the patient for whom the inquiry was made and living in the same house. Other and equally absurd examples often come up from time to time, and make one wonder where the matter will end."

The correspondent argues that this incident shows that the hold of specialism is far stronger over the English public than it is in this country.

THE American Association for the Study of Inebriety offers a prize of one hundred dollars for an essay on the lesions of chronic alcoholism capable of microscopic demonstration. Each essay must be accompanied by microscopic slides which will sustain the arguments or positions of the writer. The competition ends October 1, 1890, by which date all essays should be in the possession of Dr. W. H. Bates, 175 Remsen Street, Brooklyn, N. Y.

SOCIETY PROCEEDINGS.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 26, 1888.

THE VICE-PRESIDENT, CHARLES K. MILLS, M.D., IN THE CHAIR.

DR. MILLS made some remarks on the classification of

DYSTROPHIES,

arranging them into cases of muscular, neural, spinal, and cortico-spinal origin. He referred to the classifications of Erb, Gray, and Sachs. Speaking of dystrophies as complicating or added affection, he said that, in a considerable list of cases, a dystrophic condition is a marked, but not the only feature, of certain well-known nervous diseases, as, for example, glosso-labio-laryngeal or bulbar paralysis, ophthalmoplegia externa or progressive paralysis of the external ocular muscles, and true poliomyelitis in its various types—acute, subacute, and chronic.

Atrophy of the tongue is occasionally seen as an isolated affection, but more commonly in association with other diseases, such as ophthalmoplegia externa, glosso-labio-laryngeal paralysis, or regular or irregular forms of sclerosis. Whether an isolated affection or simply an incident of another disease, it may be unilateral or bilateral. Raymond and Artaud have recorded a case of unilateral degeneration of the hypo-glossal nucleus in tabes, and other cases with acute apoplectic onset have been reported. Westphal demonstrated a similar interesting specimen from a patient who had ophthalmoplegia externa and complete paralysis of both eyeballs, and atrophy of the antero-lateral portion of the left side of the tongue.

With almost every form of sclerosis described as a separate disease, a dystrophy may, at times, be associated, as his own experience had shown. In posterior spinal, lateral, amyotrophic lateral, or disseminated sclerosis, early or late may develop progressive muscular atrophy of one or more extremities; or a bulbar paralysis of either the glosso-labio laryngeal, or of the external ocular type. Such cases are included in the list to be presented at the present meeting. It might be worth while to discuss the question of the identity or not of progressive muscular atrophy and amyotrophic lateral sclerosis, some authorities denying the justice of any distinction. Charcot regarded the degeneration of the pyramidal tracts as primary, and the affection of the horns as secondary, and hence the name given by him.

Besides the joint affections which occur in the course of posterior sclerosis and other spinal diseases, cases are sometimes seen in which widespread disease of the joints is associated with equally widespread atrophy, giving a form of arthritic muscular atrophy to which Gowers devotes a few pages, and which has been discussed by Duchenne, Vulpian, Paget, and others. The atrophy which commonly attends inflammation of the joints is not to be altogether explained by disuse. The joint disease may be the cause of the atrophy, or the two may be associated and due to a common cause. Paget speaks of these cases as reflex atrophies due to disturbance of some nutritive nervous centre, irritated by the painful state of some of the sensitive nerve fibres. In some of the cases of widespread arthritic atrophy the joints are extremely painful, and in some not.

Dr. Mills presented notes, and exhibited patients, illustrating some unusual forms of dystrophies.

CASE I. *Progressive muscular atrophy of traumatic origin.*—J. G., aged forty-four years, white, born in Germany, laborer, was admitted to the Philadelphia Hospital March 1884. In June, 1876, he fell from a scaffold and sustained severe injuries in the cervical region, for which he was treated at the Pennsylvania Hospital for two years, when he was discharged, able to do light work. In December he resumed work as a stonecutter, and considered himself well up to February, 1884, when he fell from a scaffold, and again hurt his spine, this time in the dorsal and lumbar region. During five weeks after the accident he lost all control of the bladder. On several occasions after his admission he passed blood with his urine. Four weeks after the accident he felt two constricting bands, one at the level of the nipple, and the other just below the umbilicus. The upper band tightened at the least movement of the arms, almost preventing respiration, and on attempting to rise, the lower band tightened. He complained also of a burning sensation in the soles of his feet.

In 1884 it was noted that he was able to walk; but had marked atrophy of the muscles of the shoulder and arm. The thumb was strongly flexed, and the fingers were contractured. He also had some atrophy of the muscles of the lower extremities. Recent examination shows extreme wasting of the muscles of the upper half of the body, at least as far as the face. Most of the muscles of the neck are visibly atrophied, but the trapezius and sterno-mastoid are in good condition. The muscles are uniformly atrophied in the upper half of the body. On tapping the pectoral muscles over the ribs, local elevations occur. No fibrillary tremors are noticeable. There are irregular contractures of the hand and a striking appearance of the thumbs. The second phalanx is flexed, and the first drawn backward at a right angle. The muscles of the legs are atrophied to a less degree. Knee-jerk is exaggerated and ankle clonus marked, most on the left side. Faradic contractility is retained to a current of moderate strength. Partial degeneration reaction with galvanism is present.

CASE II. *Progressive muscular atrophy of traumatic origin.*—N. S., aged thirty-four, white, born in Germany, a sailor, during his infancy was sickly, but after the age of two years was strong and healthy. He denied any specific history. He had malarial fever in the summer of 1884, for three weeks, but recovered perfectly so far as he knows.

About three years ago while working in a rolling-mill, a ball of red-hot molten iron was dropped into water and exploded, and one of the fragments struck him in the right forearm, inflicting a severe wound; the bones were exposed and the tendons laid bare. The wound healed slowly, and he was under treatment for eleven weeks. His arm was not quite healed for nearly fifteen weeks, although he was able to do some work with it. He went back to the mill and for about six months his arm gave him no trouble, when he began to notice gradual wasting and loss of power in it, which slowly extended to the shoulder, the other arm, and later to the neck, etc., as now observed.

He presents advanced atrophy of the muscles of the forearm and shoulders of both sides. The muscles of

the neck generally are atrophied. When the patient bows his head, after reaching a certain point the head suddenly falls forward, and in lifting the head the muscles of the back and neck are brought into strained and unnatural action. He can only keep his head erect by resting the occiput on the back of his neck. The atrophy has not yet spread much over the lower half of his body.

He has fibrillary tremors, especially in the muscles of the chest and neck.

Both knee-jerks are exaggerated, and he has slight ankle-clonus. He complains of considerable pain in the legs and arms. His pupils are normal.

Farado-contractility is retained, partial degeneration reaction.

CASE III. *Diffused sclerosis, chiefly amyotrophic lateral, with bulbar paralysis.*—J. S., sixty-six years old, has been in the Philadelphia Hospital for many years. His mental powers are generally enfeebled, but his memory for past events is fairly good.

He has considerable tremor: his head sometimes shakes, and sometimes his trunk and entire body. Both hands are very much atrophied, the thenar and hypothenar eminences, interossei, etc., wasted. He has an apparent double wrist-drop. His fingers are usually a little flexed. He can elevate his arms but they are weak; the muscles high up in the limbs are slowly getting worse. The left upper extremity is weaker and more wasted than the right. While his hands have the appearance of double wrist-drop they are not completely helpless; he can with a strong effort extend his hands and fingers. The thumbs are usually carried across the palms.

Both legs are in a spastic condition, having a tendency to remain contractured in extension. The feet assume a slightly varus position. There is spasm of the adductors of the thighs. The muscles of the legs respond to faradism, but it requires a strong current, which is probably due to the condition of the skin. His senses of touch and pain are retained. He has incontinence of urine. Both knee-jerks are exaggerated, and muscle-jerks marked.

The right pupil is larger than the left. The iridic response to light is diminished. He has no true facial paralysis, but poor control of the musles of expression; he cannot with facility draw his mouth to one side or the other, and he has little power in the oral muscle, as in whistling. The general bulk of the tongue is small. The contours of the face are more strongly marked on the left side than on the right. He complains of difficulty in swallowing. Testing with water and bread, the difficulty seems to be in the constrictor muscles of the pharynx. His method of speaking is peculiar. He speaks with great effort, the difficulty being in phonation. as well as articulation. At times his speech is explosive or stormy in character; sometimes it is hesitating, but it is not distinctively of this character. Smell and taste are preserved.

Farado-contractility in the muscles of the forearm is retained. When a strong current is used on the extensor muscles of the forearm, while these contract the flexors contract so much more strongly that the movements of the extensors are obscured, an observation which would seem to show that when one group of muscles are much atrophied and weakened, extra-polar diffusion of the current to antagonistic muscles might lead to the mistake or supposing that the muscles tested did not respond.

CASE IV. *Unilateral atrophy of the tongue in an old man, with senile dementia.*—J. C., aged eighty-six, a laborer, had an insane grandfather; has had acute rheumatism, and malarial fever, has been a moderate drinker, but denies venereal disease. For several months he has suffered from incontinence of urine and feces, and has had some trouble in micturition.

He has a peculiar defect of speech; when he talks his articulation is a little indistinct and tremulous. His tongue is distinctly atrophied on the left side. The imperfection of speech appears to be due to this lingual atrophy, and weakness of the oral muscles. He has some tremor of both hands and arms. He appears to be weak on the left side, but there is no well-defined paralysis. He is irascible and irritable, and it is hard to fix his attention. At times his mind seems to wander, and he is often querulous and worrying. The arcus senilis is highly marked, and his bloodvessels are extremely atheromatous.

CASE V. *An irregular form of sclerosis with hemiatrophy of the tongue.*—J. W. J., thirty-six years old. About sixteen years before coming under observation had a chancre, and since then has had various attacks of sore throat. Ten years ago he first noticed slight numbness in the left foot beginning in the toes. This feeling extended slowly so that the entire left side of the body became weak in about two years. He retained power, however, on that side for nearly three years, when the left arm began to fail. He began to lose power in the right leg about three years after the first attack of numbness in the left foot. In about two years later he became almost helpless in the right leg. The right arm has not been affected. He began at a date he could not fix to have tremor of the tongue, which wasted on one side. His bladder has never been affected, except that he has sometimes suffered pain during micturition. For nearly two years he was so helpless that he could not leave the house. Under specific treatment he got well enough to go out, and for five or six years has kept about the same.

Examination shows no headache. He has abundant secretion of saliva, and has fair control over the facial muscles.

The right half of his tongue is practically normal. The left half presents a remarkable appearance; it is much smaller than the right, and is irregularly atrophied, so that its border presents an unevenly eroded, or corrugated look. It is in constant tremulous motion.

The left hand always feels cold to the touch, but has a flushed appearance. Sensation in the right leg and both arms is well preserved for touch, pain, and temperature. The left hand is numb and sensation is diminished. Sensation in the face is preserved. The left knee-jerk is exaggerated; the right well-marked; ankle clonus is decided on the left, slight on the right; muscle-jerk is decided on the left. He walks with a cane, dragging the right leg.

Both faradic and galvanic contractility are retained. At times he complains of dizziness. When he lies down in any position but upon the right side, he feels as if he would fall face forward.

CASE VI. *Simple muscular atrophy associated with old joint disease.*—W. C., aged thirty-two, white, is very

pale and emaciated. Atrophy of his legs is especially marked, in the right leg and thigh more than the left. Foot-drop is marked on the right side. Patellar reflex is retained in both legs, and about normal; ankle clonus is absent. The legs seem stiff and the patient cannot move either of them. He is totally unable to walk or stand. The paralysis of the right leg is more complete than the left. He does not appear to be able to move leg, foot, or toe. His right leg is extremely atrophied or emaciated from the hip down. The right hip-joint shows signs of old inflammation with adhesions, and other secondary changes, so that the thigh is absolutely immovably fixed to the pelvis. On handling the hip-joint no pain is experienced. The left leg is thin, but shows much less wasting than the right. The middle of the right thigh measures 11½ inches; of left thigh, 13⅛ inches; middle of right leg, 8½ inches; of left leg, 9¼ inches. The right leg from the anterior superior spinous process to the internal malleolus measures 28½ inches; the left leg, 32½ inches. Sensation appears to be perfect. Faradocontractility and galvano-contractility are normal.

CASE VII. *Idiopathic muscular atrophy.*—D. S., aged thirty-one, white, born in Pennsylvania, is one of twelve children, six of whom died of convulsions. One sister is hysterical, and all of the others are subject to fits. The patient has two older brothers, aged respectively forty and forty-two years, affected like himself. The disease came on them in childhood, as in his own case. He had spasms from infancy until he was twelve years old.

At eight years of age it was noticed that he could not go up stairs without putting his hands on his knees. He continued slowly to get worse, soon walking with a cane. He learned barbering at sixteen, and was able to work at it for ten years. At twenty-three he had to use crutches. Until 1882 the weakness was confined to the legs; it then began to involve the arms, which pained him when he raised them to shave.

He has no difficulty in speech or swallowing. His sight is good. The face shows very slight smoothing out, and weakness of the right side. The irides respond to light.

He exhibits universal, or almost universal, wasting, although in varying degree, of the muscles below the head. His upper extremities are very thin, particularly the upper arm and forearm. His hands are also wasted, but the thenar and hypothenar eminences and interossei muscles are not so much wasted comparatively, considering the stage of the affection, as the muscles of the forearms, hands, and trunk. The deltoid muscles are also not absolutely wasted. The left deltoid is less wasted than the right. Marked atrophy of the trunk muscles is well shown when he attempts any movements of the trunk, for which he is incapacitated except to a small degree. The latissimus dorsi and the pectorals are in an advanced stage of atrophy. The muscles of the lower extremities show wasting as above—the right muscles probably in the most advanced stages. The patient thinks his disease began in the thighs. In the lower extremities are well-marked vaso-motor changes. The feet and legs are purple or reddish in color, and colder than they should be, this mottling being most marked in the region of the knees and thighs.

The knee-jerk and muscle-jerk are abolished. Faradic and galvanic contractility are retained.

Sitting, this patient can, by an effort of the will, cause the muscles of the thigh to contract almost like fibrillary or involuntary contractions, and yet he cannot use the same muscles for their usual physiological purposes. He cannot, for example, kick out, or cross the legs, and yet he can produce by a willed effort waves of muscular movement in the quadriceps and other muscles.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 20, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. THOMAS E. SATTERTHWAITE read a paper on

A NEW STUDY OF LOBAR PNEUMONIA; WITH STATISTICS DERIVED FROM A REVIEW OF FIFTY-SIX FATAL CASES.

(See page 1.)

DR. ANDREW H. SMITH said that the subject was one beset with difficulties, whether viewed from one point or another. There was one fact in the history of pneumonia which might have some bearing upon our ideas of its nature. He referred to the very peculiar temperature which was really characteristic of the disease. It reached very early an exceedingly high point, maintained it for a considerable length of time, and then abruptly fell. The fall, which took place about the sixth day, was not only to normal, but frequently to a subnormal degree; yet there was not a corresponding change in the physical signs to give any explanation. This would seem to indicate that there was something in the disease entirely different from an ordinary inflammation. The measure of inflammation, so far as concerned the physical signs, were the same. It was quite possible that the production of poisons in the blood had something to do with this change. It would lead one to suspect that the disease was due to a germ of some kind.

The disease differed from any other in another respect, which might have some bearing on the treatment. He referred to the peculiarity in the disturbance of the circulation. This disturbance was mostly in the lungs, and as a result of the obstruction to the flow of blood through the lungs, there was accumulation of blood on the venous side and paucity on the arterial side of the circulatory system. The labor thrown on the two sides of the heart was thus made very unequal, the right heart being burdened while the left had less than what it was accustomed to do. The heart stimulants would generally affect the right side no more than the left, and some were largely useful in other affections by their influence on the vasomotor system, but it had been shown that there were no vasomotor nerves connected with the pulmonary vessels.

It seemed to Dr. Smith somewhat difficult to frame a rational basis of treatment in these cases. The fact that there had been advocates of a great many different forms of treatment, and the efficiency of the same methods had varied at different times in the same hands, would seem to show that no very clear indications, which were not general, existed. Certainly, when there existed what had been called collateral fluxion, the temptation was strong to withdraw some blood, and it had been found that venesection was followed promptly by a certain amount of relief. Yet the relief could be only tempo-

rary, while if the procedure were repeated the patient would necessarily grow weaker.

The tendency to death was not due to congestion of the lung, but to heart failure, particularly of the right side. Then there was the high temperature, and also the poisonous effect upon the brain and nervous system, which constituted indications for treatment. He was fully in accord with the author that antipyretics which had a depressant effect should be avoided. While he thought the existence of a high temperature in itself would be injurious, yet he disapproved of reducing it by a means which might have a worse effect than the temperature itself would have exerted. It were better to do too little than to do too much. To promote the elimination of excrementitious material, the bowels and kidneys might be made active. The skin was likely to be active without the use of diaphoretics. He was not at all surprised that the expectant method had so many advocates, nor at its comparatively good results.

There was one remedy which remained to be mentioned as being of decided advantage in a very limited number of cases. It was the inhalation of oxygen gas. Ordinarily the blood would not take up much more oxygen than it obtained from ordinary atmosphere, but there were times in pneumonic cases when that little would bridge over an imminent danger, especially when there was a large amount of fluid in the other lung. It certainly reduced the labor of respiration to some extent. The heart's action should be supported in every way. The question of how much alcoholic spirits should be administered was difficult to determine, but he believed they were too freely used by some. When the blood was loaded with alcohol it became a direct irritant to the heart itself.

DR. BEVERLEY ROBINSON felt less well satisfied on a few points in connection with pneumonia than did Dr. Satterthwaite. For instance, he had never seen the characteristic sputum in any other disease, and he thought that in the rusty sputum of the stage of hepatization we had a sure diagnostic sign. With regard to causation, without attempting to pass as far as the precise cause, he thought great bodily fatigue and foul air were efficient factors. The disease also often developed suddenly in persons returning from the theatre after having overworked mentally during the day. Regarding treatment, those who had had experience a few years ago might find the same remedies of much less value to-day. The types of the disease changed, and required a change of treatment. He disapproved of the use of antipyretics which weakened the heart and general system in this disease, or any other where in this way they might exert an injurious influence. He could not help believe that high temperature, after all, was only a symptom, and a single symptom of a grave disorder, and it had always seemed unreasonable to him to reduce the temperature by a remedy which would depress an already weakened system. Digitalis in infusion could be used with far greater safety than newer antipyretics, or aconite, or veratrum viride.

He was surprised that Dr. Smith had come to regard oxygen gas of use in only so limited a field. In the treatment of pneumonia he employed oxygen gas, gave the patient black coffee, pretty free use of brandy in milk or brandy alone, small doses of calomel, the judicious use from time to time of some cardiac tonic, as digitalis, or strophanthus; avoid drafts. He deplored the use of the oiled jacket which made drafts all the more dangerous.

DR. SIMON BARUCH said that his interest in the subject centred principally in the treatment. He had dropped heroic measures as they were taught when he was a student, and had gradually adopted the expectant plan of treatment. He had read a paper, many years ago, before the South Carolina Medical Society, in which he drew some lessons regarding the treatment of pneumonia from the homœopaths. He meant the original homœopaths who treated disease by infinitesimal doses, or, as we knew, who did not treat them at all medicinally. Their careful attention to diet and hygienic management accounted for their success. There was no remedy which had any influence in checking the disease, but there were remedies which modified its course considerably. Regarding the high temperature, it was not an indication of the dangerous character of the disease. While he might not have the antipathy for modern antipyretics used in other diseases which Dr. Robinson had shown, yet he considered their depressant action injurious in pneumonia; nor did he use quinine.

The proper way to stimulate the right side of the heart was to relieve it of the load bearing upon it by influencing portal circulation. He gave eight to ten grains of calomel, and, if necessary, followed it by a saline cathartic. It might be necessary to use digitalis. He did not believe the types of the disease changed with the season or year, but that they did change according to whether one at one time had a hospital practice and at another private practice, etc. The original condition of the patient altered the type. He did not share Dr. Robinson's objections to the cotton jacket and oiled silk. He employed non-absorbent cotton, and with the oiled jacket outside to prevent evaporation and keep the surface warm, the perspiration bathed the body, and acted as a good substitute for a poultice.

DR. ROBINSON disapproved of a poultice, and of the use of cotton unless changed often enough to leave the body constantly dry.

DR. SATTERTHWAITE reviewed some parts of his paper regarding the characteristic sputa of pneumonia, and emphasized the fact, when speaking against depressing antipyretics, that high temperature in itself was not an indication of the dangerous character of the disease. It pleased him to know that the members were so favorable to the expectant treatment.

SECTION ON THEORY AND PRACTICE OF MEDICINE.

Stated Meeting, December 18, 1888.

R. C. M. PAGE, M.D., CHAIRMAN.

DR. E. D. FISHER read a paper on

CEREBRAL SYPHILIS.

Rumpf had divided, he said, the disease in the brain into three classes: (1) disease involving the skull; (2) new growths involving the brain or its membranes; (3) specific disease of the cerebral vessels. It was to the latter that the paper was more particularly designed to call attention.

As to the pathology, many of the earlier appearances in cerebral syphilis, in the second stage, were probably due to simple hypertrophy of the tissues affected. It was cer-

tainly time, however, that in the tertiary stage, whether occurring early or late, the tissue-changes, whether in the form of a gumma or merely affecting the arteries, had a specific character. Hence he believed with Rumpf that the virus itself was still active, and that these changes are not due to the effect of a poison which had expended itself but left its impress on the system. Also to sustain this clinically, he felt sure that there were found many cases transmitting syphilis late in the course of the disease which then passed through the same class of symptoms as when the disease was transmitted early in its course.

Meyer considered as almost pathognomonic of syphilis a matting together of the dura and pia with softening of the cortex, since in pachymeningitis from other causes this rarely occurred. Characteristic of the pathological changes of syphilis, as distinguished from atheroma, according to Heubner, was the fact that the larger arteries were alone affected in atheroma and that continuous tracts were involved; while occlusion occurred by thrombosis, and never by a narrowing of the lumen of the artery. The process consisted of a simple hypertrophy, resulting in calcification; there being no new growth. In syphilis, both large and small arteries were affected; the tendency being, however, toward the small and middle sized vessels. We might, indeed, have thrombosis; but the marked lession was narrowing and final occlusion of the vessels from the extension of the new growth internally, though rarely in the endothelial lining. The process was rapid, and differed from atheroma in that it was not continuous, but occurred in plaques. Arterial disease might occur entirely independent of gummata, and according to Dunn the vessels of the pia were very frequently involved; leading to softening and atrophy of the cortex. The tendency to the formation of new vessels with their walls so characteristic of all granular tissue was here present; so that we had at first a tissue richly supplied with vessels.

Rumpf placed the origin of the arteritis in the middle coat of the arteries, and insisted on its character of granular tissue, similar to that found in all syphilitic growths. He admitted the difficulty of differentiation microscopically from atheromatous arterial changes, but believed a special bacillus could here be found which was the source for the primary chancre and the late growth. A drawing of his representing syphilitic arteritis, in which the narrowing of the lumen was clearly delineated, corresponded very closely to a microscopical section of the basilar artery in a case of Dr. Fisher's, which he related at the close of the paper.

In treating of the symptoms of cerebral syphilis, he referred first to the psychical changes often present. While occasionally sudden in their onset, they were more often gradual, extending over months or even years. We noticed a general loss of mental power, the ethical nature seemed to suffer, the memory became weakened, and there was often a feeling of loss of power of performance. Insomnia, independent of cephalalgia, was one of the early symptoms, and always a serious one. It sometimes had associated with it somnolence or even stupor. Headache was, perhaps, one of the most frequent of all the early symptoms. It was, however, always indicative, if localized, of either cranial bone or dura affection. It was very often absent when the lesion was situated in the arteries. The cranial nerves, and especially the third, fifth, and sixth pairs, were early affected, either partially or completely. Hutchinson said that he had never seen the seventh alone affected, although such cases have been reported. He was equally strenuous on the diagnostic value of affections of the fifth as indicating syphilis.

In arterial disease unassociated with meningitis or tumor we often found the single paralysis of the cranial nerves. Epileptic seizures are often present, and as the inflammation was usually diffused rather than circumscribed, they were more often general than localized. As regards the eyes, Dr. Fisher called attention to choroiditis and retinitis as indicative of an already existing affection of the cerebral vessels. A cloudiness of the disk, appearances of atrophied spots in the fundus, traces of a past retinitis or choroiditis, and gummatous enlargements especially involving the terminal arteries, naturally aided in a positive diagnosis. As a diagnostic point, any interference with vision in a part of the field of vision or a general loss of acuity of vision in the young should lead to the suspicion of syphilitic disease of the cerebral arteries.

Paralysis of parts widely separated was strongly diagnostic of syphilis. Also hemiplegias coming on without loss of consciousness in which the paralysis was preceded by numbness and tingling, and gradually extended from the arm to the leg (especially if there had been previous irritability for weeks or months, loss of memory, and perhaps headache, confusion of ideas, and somnolence or insomnia), occurring in persons under forty years of age, were probably specific.

DR. WILLIAM H. THOMSON considered the paper a valuable contribution to a subject of great interest and very great obscurity. The differential diagnosis of the various forms of cerebral syphilis, he said, is often a very difficult matter. In the first place, the question arose, Have we syphilis at all to deal with? The nervous symptoms alone are not sufficient to determine this point, and it is necessary, therefore, to make an examination over the body of the patient. There is one mark which he regards as of considerable importance in this connection, namely, tenderness on pressure at the junction of the sternum with the ensiform cartilage. It is almost uniformly present in syphilitic patients, and its diagnostic value is, therefore, very great. It being reasonably sure that the patient is suffering from cerebral syphilis, it must then be determined whether he has meningeal trouble, syphilitic tumor, or vascular disease. If the latter, we should endeavor to find out what particular form of vascular syphilis is present.

Syphilis is to be suspected in any case which is characterized by variableness and inconsistency, in which it differs from other forms of disease. In meningitis headache is the most marked characteristic. In the second place, we have the gradual development of the symptoms. Thirdly, we should examine the condition of the vessels generally, and see whether they are soft and natural. In syphilitic tumor we have to rely very much upon the condition of the eye; and choroiditis is much more commonly present than retinitis. Sluggishness of the pupil, which has been referred to in this paper, he has often noticed, though he had not been aware of its diagnostic significance; and he said he was very glad to have his attention called to this point. Sometimes with meningitis or tumor there are symptoms of insanity and epileptiform seizures.

About a year ago he had been called in consultation in the case of a lady well advanced in years, who was in a comatose condition. There was no evidence of kidney disease, indicating that the trouble was uræmic, and pressure upon the sternum elicited groans from the patient, notwithstanding the coma. Suspecting, therefore, that the trouble was due to cerebral syphilis, he advised specific treatment, and the patient afterward recovered. Yesterday he said he was called to see the husband of this lady, a man seventy years of age. About two weeks ago he began to be affected with confusion of speech, great irritability, and motor symptoms. These motor symptoms were not of a paralytic kind, but referable to incoördination. Depression alternated with excitement, and he had become quite emotional. He also had insomnia at night, and suffered from somnolence in the daytime. Dr. Thomson said he had very little doubt that this patient was suffering from syphilitic endarteritis.

DR. LANDON CARTER GRAY said that if we started from the prime anatomical lesion of syphilis, the round cell, we could get a better idea of syphilitic developments. It was a characteristic of the syphilitic round cell that it had an enormous vitality. It would live for a long time in the system, and would undergo retrograde metamorphosis without the formation of pus. As long as the cell caused no structural disease by its presence, the prognosis was favorable. We did not yet know all the forms of cerebral syphilis, but some of them were sufficiently familiar. There might be, in the first place, a chronic interstitial encephalitis, scarcely distinguishable from that of general paresis, except by its slower progress. Secondly, there was pseudo-encephalitis, in which there was great danger from sudden death. In other cases the disease attacked the arteries. Precisely what the lesion was he did not know, but there did not seem to him to be anything pathognomonic about the affection. Finally, there was an implication of the meninges: (1) of the dura, causing headache; (2) of the pia, involving the cortex.

In the majority of instances it was necessary to make the diagnosis from the conditions found in the brain, rather than from evidences of syphilis derived from other sources. Dr. Gray then proceeded to quote, from a paper which he read last year before the Philadelphia Neurological Society, and which had been published in THE MEDICAL NEWS, certain groups of symptoms which he had formulated from his own experience as indicative of specific infection.

DR. CHARLES L. DANA said that the symptomatology of cerebral syphilis was very difficult; but from the contributions that had of late years been made to the subject, we could now form a pretty correct picture of it. The pathology, however, still remained in a very unsatisfactory state. He could not believe that the lesions which are observed are due to Dr. Gray's round cell, since this anatomical factor was common to other conditions and affections. In the cases which he had seen, there were four different forms of lesions, which were as follows:

1. Local hyperæmia.
2. Local meningitis and gummatous changes.
3. Cranial root neuritis, or neuritis itself.
4. Degenerative changes resembling those from other causes.

DR. FISHER, in the course of his remarks in closing the discussion, said that he had found the tenderness of the sternum on pressure, as pointed out by Dr. Thomson, a valuable diagnostic sign of syphilis. As to the round cell referred to by Dr. Gray, he doubted whether it was of syphilitic origin, and thought that if there was anything specific about the pathology of the disease it was a bacillus.

OBITUARY.

EDWIN M. SNOW, M.D.,

died suddenly, of heart disease, at his home in Providence, R. I., on December 22d, in the sixty-ninth year of his age.

He was born in Pomfret, Vermont, and was a lineal descendant of William Snow, who was born in England, in 1624, emigrated to Plymouth, Mass., and afterward was among the early settlers of Duxbury and West Bridgewater, Mass. After preparatory studies at Kimball Union Academy and the New Hampton Institute, both in New Hampshire, Dr. Snow entered Brown University, where he graduated in 1845. Subsequently he studied medicine with Dr. W. D. Buck, at Manchester, N. H., and graduated at the College of Physicians and Surgeons, New York, in 1849. He began practice at Holyoke, Mass., the same year, and treated many cases of Asiatic cholera, which disease was then prevalent in that city. The next year he went to Providence to practise, and in 1854, in the capacity of dispensary physician, he was again called on to treat numerous cases of cholera, and became much interested in tracing the connection of the disease with local conditions of filth. In 1855 he was elected a member of the Common Council of Providence, and was also appointed City Registrar of Births, Marriages, and Deaths, when that office was first created; and also Health Physician and Health Officer at Quarantine. In 1856 he was elected to the newly established office of Superintendent of Health, and from that time until 1884 was annually reëlected to that position, and also as City Registrar, which latter office he continued to hold to the time of his decease.

He was appointed to superintend the census of Providence in 1855; was Superintendent of the State Census of Rhode Island in 1865 and in 1875, and was Supervisor for the District of Rhode Island in the National Census of 1880. In 1863 he was appointed Inspector of Hospitals by the United States Sanitary Commission, and spent several weeks in examining the military hospitals in Philadelphia and vicinity, and in visiting the Army of the Potomac, opposite Fredericksburg. He also took a prominent part in the meetings of the Quarantine and Sanitary Conventions, which first met in Philadelphia in 1857, and in the following years in New York, Baltimore, and Boston. He was a member of the National Prison Congress, which met in Cincinnati in 1870, and a delegate to the International Prison Congress, in London, in 1872. For several years he was an Inspector of the Rhode Island State Prison and Secretary of the State Board of Charities and Corrections.

Dr. Snow had been a Fellow of the Rhode Island Medical Society since 1850, and was President of the same for the year 1876–77. He was also a member of the Providence Medical Association, the American Medical Association, and the American Academy of Medi-

cine. He was a member of the consulting staff of the Rhode Island Hospital from the time of its establishment. In 1868 he was a State delegate to a convention in Springfield, Ill., in relation to the Texas cattle disease, and was Chairman of the Rhode Island Cattle Commission in 1871–72. From 1874 to 1878 he was Chairman of the State Commission which built the new State Prison in Cranston, R. I. He was sent as a delegate from the United States Government to the International Statistical Congress, which met in St. Petersburg in 1872. He was one of the original founders of the American Public Health Association, and was for two years Vice-President, and for one year President of the same. For twenty-five years he was a Trustee of the Providence Reform School, and in 1876 was elected a Trustee of Brown University. He was the author of numerous pamphlets and reports, among which are those on "Asiatic Cholera," "Smallpox," and various municipal and sanitary subjects; twenty-four Annual Reports as City Registrar, and eight Annual State Reports in Registration.

In politics Dr. Snow was a Republican, in religion a Baptist. He was widely known for his extensive and pre-eminent knowledge of the subjects of statistics, registration, and sanitation. He was a kind and genial man—held in the highest esteem by his fellow-citizens, while the intelligence, honesty, and carefulness with which he fulfilled the duties of his many positions of public trust justly enrolled him among the most honored officials of the city and State.

NEWS ITEMS.

The Abuse of Charity.—According to the *Physician and Surgeon*, December, 1888, out of sixty cases of senile cataract operated upon in one year in the Ann Arbor clinic, ninety per cent. were eminently able to have paid the fee of a specialist for a private operation. In one week among the cataract patients who were operated upon, an investigation showed that there were four patients the poorest of whom was worth over fifteen thousand dollars, one estimated his wealth at forty thousand, another had given the bulk of his property to his children, but retained two hundred acres of cultivated land, well improved and completely stocked, while the fourth was worth over three hundred thousand dollars. The fourth, or richest of these, was not a resident of the State of Michigan.

Nickel Vessels.—Although the opinion of physicians and physiologists often varies as concerns the toxic effects of copper salts, it is generally considered that the use of copper vessels in culinary operations is detrimental to health, and nickel has been much praised as a substitute for copper. DRS. LABORDE and RICHE, after many physiological experiments, have come to the conclusion that nickel salts must be absorbed in considerable quantity before becoming obnoxious, and that the use of nickel vessels in culinary or pharmaceutical operations is without the slightest danger to health.—*Popular Science News.*

NOTES AND QUERIES.

THE ORIGIN OF THE LATE YELLOW FEVER EPIDEMIC.

To the Editor of THE MEDICAL NEWS,

SIR: As the widow of the late Charles M. Turk, and in defence of his honor, and in justice to our child, I desire to correct an error and misrepresentation of Surgeon-General Hamilton, occurring in an address reported by you in your issue of the tenth of November last, with relation to the yellow fever and the part my husband (he was the only person of the name here) is alleged to have taken in introducing the disease in Tampa.

The language made use of is, "an Italian by the name of Turk." With reference to this I have to say, that Mr. Turk was an American, a native of the State of Ohio. I am a native of the State of Florida, and had been married to him, at the time of his death, which occurred on the 22d September, 1887, about eighteen months and during all that time lived with him at Tampa. The further, language used is, for this purpose (smuggling) "the man Turk and his assistant, Pete, made frequent surreptitious visits to Key West." This statement is utterly false. I deny, and it can be readily otherwise proved, that Turk never, during the time of his marriage with me, was absent from home but on three occasions: once at Jacksonville, once at Orlando, Fla., when I accompanied him, and on a third occasion he was out on a hunting expedition a few days before his death, when he slept out, camping in the open air but two nights. He (Turk) had nothing to do with a man named Pete, but he was accompanied on the hunting expedition by an Italian named Pepe, and I herewith enclose an affidavit of a friend and intimate companion of Pepe, to show that he never was in Key West.

I do not know where Surgeon-General Hamilton got his information, but if the remainder of his address is based on no better information than that relating to my husband, his statement is entitled to no respect whatever.

He further goes on to state that the whole family of Turk was the first to be taken sick. This, again, is utterly false. Turk and myself were living, at the time of his death, with my mother, brother, and sisters. We had all just been burned out at Tampa, and none of us took the fever from my husband. The absurdity of the affair was that the house and premises of my brother-in-law, C. W. Wells, near where we lived, were quarantined, while that in which we lived was not so treated. Mr. Wells and family also escaped at that time, though some two months afterward they were attacked and were slightly sick.

I regret that this statement is so tardy, and trust that you will do me the justice of publishing it.

MARGARET TURK.

"State of Florida,
"County of Hillsborough.

"On this 26th day of December, A.D., 1888, personally appeared before me A. Bartholomew Philogamo, to me well known, who, being duly sworn, deposes and says:

"I am well acquainted with Vincenzo Pepe, and lived with him and occupied the same apartments, and was in daily communication with him for some months prior and up to the death of Charles M. Turk, which occurred on or about the 22d day of September, 1887, and I know that he, the said Pepe (I do not know any Italian in Tampa going by the name of Pete), during that time, never went to Key West, or was absent from Tampa for more than one night at a time, but on one occasion, and then I understood he accompanied Charles M. Turk on a hunting expedition. I also know that said Pepe had not, during the time he was in Tampa, and he left there on 3d October, 1887, the yellow fever.

"A. B. PHILOGAMO.

"Sworn before me, at the city of Tampa, Florida, on the day above written.

[SEAL] "FRED. J. LAPENOTIERE,
"*Notary Public*,
"State of Florida."

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ORIGINAL ARTICLES.

TUMORS OF THE BRAIN IN CHILDHOOD.

Their Variety and Situation, with Special Reference to their Treatment by Surgical Interference.[1]

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UNTIL a recent date the subject of intracranial tumors in childhood has appeared to be one of so little practical importance that it has received but little attention. The interest in a case of tumor of the brain appeared to end with the diagnosis, and there was no class of cases which presented a more hopeless prognosis. Medical treatment was admitted to be useless, and surgical interference was not supposed to be possible.

But the very remarkable advances of recent years in the knowledge of the localization of cerebral functions has made it possible to diagnosticate the existence and the location of cerebral tumor with much greater accuracy than formerly. And the equally marvellous achievements of cerebral surgery offer a hope of the possibility of treatment. It seems, therefore, that any study of cerebral tumors at present is not ill-timed, and since no article upon this subject has been published, excepting the chapter by Steffan, in Gerhardt's *Handbuch der Kinderkrankheiten*, written eight years ago, it has occurred to me that a presentation of the subject as relating to children would prove both interesting and profitable.

All authorities upon brain tumor agree that it is a disease which is equally frequent at all ages. Gowers, indeed, states that one-third of all the cases occur in persons below the age of twenty. And a study of the three hundred cases which form the basis of this article shows that infants, children, and youth are about equally liable to develop tumor within the cranium. Males are more liable than females in the proportion of about three to two. It is evident, therefore, that those who see much of children's diseases are almost as likely to meet with cases of tumor of the brain as are general practitioners. In the list of organic nervous diseases of childhood, cerebral tumors stand high, being only exceeded in frequency by meningitis, spinal paralysis, and cerebral hemorrhage.

[1] Read before the Section on Pædiatrics, New York Academy of Medicine, November 28, 1888.

Such being the importance of this subject, a careful study of it seems necessary. As a basis for such a study I have collected three hundred cases of cerebral tumor occurring in persons below the age of nineteen. It is true that individuals between fifteen and nineteen can hardly be called children, but, as a matter of fact, cerebral tumor is a slowly progressing disease, and it had, in the majority of the cases collected, developed from two to ten years before death. It seemed, therefore, necessary to include all cases which had terminated prior to the age of nineteen.

These cases have been derived from numerous sources, and inasmuch as collections of cases made by different authors often include the same cases, I may state that there are no duplicates in this collection. About one hundred of these cases have been taken from Bernhardt's collection of brain tumors, published in 1881. About ninety of them were found in Steffan's article, already mentioned, published in 1880. The remainder have been brought together from the medical journals published since 1880; and I may say that the majority of the German, French, English, and American periodicals have been carefully searched and all the cases in them tabulated.

Table I. shows the variety of tumors found, the situation occupied by each variety, and the proportion of tumors of each variety in each location; and it affords data for a discussion of the possibility of surgical interference.

I. *The variety of tumors* found in children is great, but the overwhelming frequency of tubercular tumors is at once evident (over one-half of the entire number), and also the great rarity of carcinoma and gumma in childhood. This latter point is of interest, for a somewhat similar table of tumors in adults would show that above the age of nineteen gumma is much more frequent than any other form of tumor. It is also to be noticed that tubercular tumors are not infrequently multiple, a fact which should not be forgotten in making a diagnosis of the seat of the disease.

Glioma and sarcoma follow tubercle in frequency and make up about one-tenth of the cases each. Cysts of the brain may arise either in connection with sarcomata or independently, as the result of parasitic infection. Hydatid cysts, echinococcus, and cysticercus are very much more frequently met

TABLE I.—BRAIN TUMORS IN CHILDHOOD AND YOUTH.

Situation.	Tuberculous.	Glomatous	Sarcomatous.	Glio-sarcomatous	Cystic.	Carcinomatous.	Gummatous.	Not stated.	Total.
I. Cerebral axis:									
1. Basal ganglia and lateral ventricles	14	3	5	...	1	1	...	3	27
2. Corpora quadrigemina and crura cerebri	16	1	3	...	...	...	...	1	21
3. Pons	19	10	5	2	1	...	...	1	38
4. Medulla	2	...	...	...	1	2	...	1	6
5. Base	...	...	1	1	1	1	...	4	8
6. Fourth ventricle	1	1	1	...	...	1	...	1	5
II. Cerebellum	47	15	10	1	9	3	...	11	96
III. Multiple tumors	34	...	3	...	2	...	1	3	43
IV. Cortex cerebri	13	6	1	...	...	1	...	...	21
V. Centrum ovale and corpus callosum	6	1	5	1	15	1	1	5	35
	152	37	34	5	30	10	2	30	300

with in the German records than in English or American journals. Kuchenmeister, in an article on this subject, has collected eighty-eight cases, but I have not included them in the table, as they would give an appearance of undue frequency of this disease, which would mislead. In America a cerebral cyst of parasitic origin is a curiosity, and but few cases are to be found in our journals. Carcinoma of the brain alone is a great rarity, and among the cases tabulated are four which invaded the brain secondarily, after beginning in the retina of one eye, a not infrequent form of the disease in childhood.

In comparing this list of the relative frequency of the various forms of tumors with smaller lists, I find that the relative frequency is about the same in all lists; and, therefore, I think that this may be considered fairly reliable, though statistics are always to be looked at with care.

The diagnosis of the kind of tumor present is always a matter of probability in any case; and, hence, such a list has a certain diagnostic value. It will, of course, occur to any one in the presence of a child with brain tumor to inquire carefully into any history of hereditary tendency to tubercular disease, and to examine carefully for other evidence of tuberculosis, such as enlarged glands, scrofulous joint disease or phthisis, chronic diarrhœa, etc. Occasionally the tubercular tumor has been found, after death, to be the only manifestation of infection, but this is not the rule. Tubercular tumors are so frequently multiple that the occurrence of local symptoms pointing to more than one tumor will also point to tubercular tumors.

The determination of the question as to the existence of tubercular disease is of the greatest importance, in view of the possibility of surgical interference. Supposing that a brain tumor is diagnosticated, and is located in a place accessible by trephining: if it is thought to be tubercular is an operation justifiable? Such an operation may prolong life, but the disease may reappear in the brain or elsewhere. The operation is certainly attended by greater danger than in a non-tubercular person. Yet the existence of tuberculosis does not prevent the surgeon from attacking tubercular joints or tubercular testicle. Should it prevent his attacking a brain tumor? Von Bergmann[1] thinks that it should, affirming that it is impossible to remove the cheesy masses from the soft brain coverings and tissue with the thoroughness that is possible in dealing with bones. He claims that the operation will be incomplete, and that a relapse in then certain. English surgeons have taken a different view, and have removed successfully several tubercular tumors completely without relapse. But further experience is certainly necessary before any rule can be laid down in the matter. The greatest drawback met with in dealing with tubercular tumors by surgical measures is the possibility of the presence of more than one tumor, the failure to detect and remove more than one, and the consequent need of a second operation when the second tumor develops sufficiently to give rise to special symptoms.

If there is no probability in a case of tumor that tubercular disease is present, the diagnosis of the kind of tumor present is difficult. Gumma is so very rare that unless a distinct history of acquired syphilis with other syphilitic manifestations, and the occurrence of nocturnal headache and insomnia are present, it may be dismissed as a most unlikely form of disease. Carcinoma of the brain, though in a few cases primary, is usually secondary to carcinoma elsewhere. Should such a tumor be found in the body, especially if it should be found in the orbit and in connection with the retina, the diagnosis of the cerebral tumor can be made. Otherwise, it cannot be thought probable. To remove a secondary cancer in the brain when the primary cancer remained would hardly be undertaken by any good surgeon.

Cysts in the brain of parasitic origin form very slowly, never destroy but always displace the brain tissue, and rarely, if ever, give rise to localized symptoms. In a case of brain tumor in which the

[1] Chirurg. Behandl. d. Hirnkrankheiten, p. 58.

symptoms are all general and not local the possibility of cyst should not be overlooked, and the child's history should be investigated in regard to any exposure to infection, the presence of tapeworm or of hydatid tumors elsewhere. There is no reason why such cysts should not be removed.

The remaining varieties of tumor—glioma, sarcoma, or gliosarcoma—cannot be absolutely differentiated from each other. Occasionally sarcomata in other regions of the body may lead to the suspicion that there is one in the brain, but in the thirty-four cases here brought together, there was a sarcoma elsewhere than in the brain, in only four. Hence, this point of diagnosis is not to be relied upon. Glioma and sarcoma may be equally slow in growth, may produce very marked symptoms or none at all, and do not differ markedly in their selection of situations in which to develop. Bramwell believes that glioma starts in the white matter and invades the gray matter. Ziegler affirms the contrary, and certainly the cases here cited confirm the statement of the German pathologist; but from a disputed pathological question no diagnostic conclusions can be drawn. Nor does the mode of origin throw any light upon the differentiation of sarcoma and glioma, for both result from blows and falls upon the head with equal frequency.

There is but one fact which may make a differentiation possible, viz.: that glioma is usually very vascular, much more so than any other tumor. A tumor which is vascular varies very much in its size, being, as it were, erectile. Variations in size within the brain are impossible, but the corresponding condition to erection in such tumors is an increase of intracranial pressure. Variations of intracranial pressure manifest themselves, subjectively, by varying intensity of symptoms, and by the possibility of modifying symptoms by means of agents which affect the blood pressure, and objectively by the state of venous congestion of the retina. Furthermore, in glioma, hemorrhages within or near the tumor sometimes occur, giving rise to symptoms of apoplexy. Therefore, in a case of tumor, great and sudden changes of intensity in the symptoms, accompanied by visible changes of circulation in the retina, and affected in one way or another by such measures as hot baths, cold douches to the spine, hot mustard baths to the feet, or free watery purgation will indicate a vascular tumor, probably a glioma. And this diagnosis will be reinforced by the occurrence of attacks apoplectic in character in the course of the case. See Case 42, Table II. And yet there are cases of glioma in which the tumor is quite hard and encapsulated, and in which these symptoms will be wanting.

But there is a practical application of these points of diagnosis regarding the vascularity of the tumor in view of surgical interference. The form of tumor most suitable for removal is the hard, encapsulated, non-vascular tumor. That is the usual form of sarcoma, and is occasionally the form of gliosarcoma and glioma. A case, therefore, is much more suitable for operation in which no vascular symptoms, such as those mentioned, are present, whether it be sarcoma or glioma. And, *vice versa*, a tumor showing marked vascular symptoms will not be a favorable one for operation, no matter what its variety or position.

II. Passing now from the consideration of the varieties of brain tumor and their differentiation, let us look at *the situation of the tumor*.

It is evident from Table II. that all parts of the brain may be invaded by tumor, but that certain parts are invaded with special frequency in childhood. These parts are the cerebral axis and the cerebellum. By the cerebral axis is meant that part of the brain which includes the basal ganglia and internal capsule; the corpora quadrigemina and crura cerebri; the pons and the medulla oblongata;[1] and which lies upon the cranial floor and is therefore invaded by tumors lying upon the base of the brain. Of the tumors collected, about one-third were in the cerebral axis. The diagnosis of such tumors is not difficult, as they usually give rise to very numerous local symptoms. It is not my purpose to discuss these here: they may be found in all the recent articles upon the local diagnosis of cerebral disease. The point of interest is that no case of tumor of the cerebral axis can be reached by the surgeon. The situation of the parts is such that a tumor in them is not near enough to the convex surface of the skull to be accessible. And, therefore, in estimating the number of the cerebral tumors in this collection which might have been the subject of surgical treatment, this class, constituting one-third of the number, must be at once excluded.

Coming next to tumors of the cerebellum we find that they number 96. They are much more common in children than in adults. Thus, in a collection of American cases of cerebral tumor without regard to age, which I have made, I find that of 45 cortical tumors 3 occurred below the age of nineteen, while of 29 cerebellar tumors 11 occurred below the age of nineteen: or, to put it more clearly, fifteen cortical tumors occur in adults for every one in a child, while only two cerebellar tumors occur in adults for every one in a child. It is, therefore, evident that children are especially liable to develop cerebellar tumors.

The diagnosis of cerebellar tumor is not difficult. The general symptoms of brain tumor are fully and rapidly developed, viz.: headache; mental disturbance, irritability, and apathy; vertigo; vomiting; optic neuritis, with or without blindness, and possi-

[1] The cerebral axis is represented by Fig. 376 in Quain's Anatomy, vol. ii., eighth edition.

TABLE II.—CASES OF CORTICAL AND SUBCORTICAL TUMORS.

No.	Author; reference.	Sex, age.	Variety and position of tumor.	General symptoms.	Local symptoms	Remarks.
1	Steiner, in Bernhardt, Beiträge zur Sympt. u. Diag. d. Hirngeschwülste, p. 105.	M. 3	Tubercular tumor, size of hen's egg, in anterior part of right hemisphere.	None.	None.	Tuberculosis of lungs and glands. Diagnosis and operation impossible.
2	Bettelheim, in Bernhardt, l. c. p. 103.	M. 13	Large ecchinococcus cyst in left frontal lobe near its apex.	Headache; optic neuritis; vomiting; sopor; slow pulse.	Prominence of eyeballs; impaired memory; right hemispasms with hemiplegia and weakness of legs.	Diagnosis possible if the onset of the spasms and paralysis was gradual and progressive. Operation impossible.
3	Petrina, in Mills, Pepper's Syst. Med., v.p.1069.	M. 16	Glioma within both frontal lobes extending to base and elevating the corp. callos.	Frontal headache; optic neuritis; vomiting; mental failure; slow pulse.	Irritability and weakness of mind, with erratic conduct; impaired vesical control; choreic and automatic movements of right arm, with tremor.	Diagnosis and operation impossible.
4	Henoch, in Bernhardt, l. c. p. 73.	F. 3	Tubercle, size of pigeon's egg, on cortex of posterior part of right frontal lobe.	Convulsions; somnolence.	Left hemiplegia, with contractures.	Diagnosis and operation impossible.
5	Archer, in Bernhardt, l. c. p. 73.	F. 11	Tubercle in first and second left frontal gyri reaching the cortex.	Headache; convulsions; stupidity.	None.	Hip-joint disease. Diagnosis impossible; operation possible.
6	Neureutter, in Steffan, Handbuch der Kinderkr. art. Geschwülste, Bd. v. p. 631.	F. 3	Tubercle, size of bean in left frontal lobe; another in cerebellar cortex; tubercular meningitis of base.	Occipital headache; insomnia; convulsions at first general, later local spasms; spastic contractions; marasmus.	Spasms in left limbs, then contracture of left wrist and neck; later extension of left leg; opisthotonus; trismus.	Rachitis. Diagnosis of position impossible; operation impossible and useless.
7	Mills, Jour. Ment. and Nerv. Dis., 1887, p. 707.	M. 16	Reddish-gray tumor 3 x 2½ x 2½ inches, involved the second frontal gyrus and parts of adjacent gyri, and invaded the white matter without reaching the corp. striatum on the right side.	After blow on head convulsions for one year; then vomiting, headache, weakness, staggering gait; next day diplopia, vertigo; paræsthesia; hunger.	Left facial palsy; paresis of left arm and leg; stiffness of arms and legs, with paræsthesia; slight ptosis of right eye.	Diagnosis and operation impossible.
8	Fleischmann, in Steffan, l. c. p. 625.	F. 5	Tubercular tumor on under surface of left frontal lobe; another at summit of convexity of right hemisphere; tubercular meningitis.	Headache; vomiting; attacks of screaming.	Left third paretic; later, right third paretic.	Diagnosis and operation impossible.
9	Escribano, in Bernhardt, l. c. p. 108.	M. 18	Two tumors, size of chestnuts, in left frontal lobe.	Headache; vomiting; epilepsy.	None.	Diagnosis and operation impossible.
10	Morgan, in Bernhardt, l. c. p. 97.	F. 7	Large echinococcus cyst in right anterior and middle lobes, destroying basal ganglia.	Intelligence weakened; pupils dilated, later blindness; convergent strabismus of left eye; numbness and weakness of legs; later, incoördination and contractures.	None.	Healthy-looking child; other cysts elsewhere. Diagnosis and operation impossible.
11	Reimer, in Steffan, l. c. p. 631.	M. 5	Tubercular tumor in right centrum ovale at junction of frontal and middle lobes surrounded by a zone of softening; tubercular meningitis.	Frontal headache; vomiting; attacks of screaming; slow pulse, at times irregular; delirium; convulsions; sopor.	None.	Rachitis; scrofula. Diagnosis and operation impossible.
12	Rothmund, in Bernhardt, l. c. p. 99.	F. 13	Sarcoma, size of hen's egg, in middle lobe of right hemisphere.	Periodical headache, with vomiting; optic neuritis; sudden death during attack of headache.	None.	Diagnosis and operation impossible.
13	Visconti, in Bernhardt, l. c. p. 98.	M. 18	Large echinococcus cyst in right hemisphere.	Periodical headaches; right tinnitus aurium; occasional loss of consciousness; staggering gait.	Double vision; trigeminal nerve very sensitive; retraction of head and neck; tetanic spasms of neck before death.	Diagnosis and operation impossible.
14	Arnott, in Bernhardt, l. c. p. 97.	M. 4½	Four tubercles in right hemisphere, each size of hen's egg.	Convulsions; death in coma.	Paralysis of right arm.	Diagnosis and operation impossible.
15	Merkel, in Steffan, l. c. p. 632.	M. 5	Four cysts in left hemisphere in its parietal lobe	Headache; general convulsions.	Gradual paresis of right arm, with deficient growth.	Left parietal bone thin and bulging. Diagnosis and operation impossible.

TABLE II.—*Continued.*

No.	Author; reference	Sex, age.	Variety and position of tumor.	General symptoms.	Local symptoms.	Remarks.
16	Steffan, l. c. p. 626.	M. 2	Cancerous mass on base and in right temporal lobe.	No cerebral symptoms.	Cancer of right eye was removed.	Diagnosis and operation impossible.
17	Hutchinson, in Bernhardt, l. c. p. 103.	F. 13	Hard tumor, size of nut, in the middle of the left frontal lobe, with surrounding softening.	Symptoms followed an injury of the head.	Right-sided spasms; gradual contracture of right arm; anæsthesia of back of right hand; paresis of right leg.	Diagnosis possible; operation possible, but expectation of cortical tumor being disappointed, deep incision to find tumor necessary.
18	Glynn, in Bernhardt, l. c. p. 123.	M. 13	Tumor, size of orange, in white matter of both right central convolutions.	Headache; optic neuritis; blindness.	Left-sided spasms; left hemiplegia.	Diagnosis only probable, unless location of spasms and progress of paralysis were noticed. Operation possible.
19	Assagioli, in Roland, l'Epilepsie Jacksonienne, case 63.	F. 10	Tubercular mass of irregular shape in cortex of paracentral lobule and quadrate lobule of left hemisphere.	None noted.	Spasm beginning in right leg and extending to arm, back, neck, and face, in order named; spasms at times in right leg only.	Diagnosis and operation possible.
20	Osler, American Journ. Med. Sci., 1885, i 31.	F. 15	Glioma in upper third of anterior central convolution under the cortex on right side	Injury to head when an infant: symptoms intermitted for some years.	Spasms beginning in left hand or in left foot, extending to face; left leg paretic and contracted.	Diagnosis and operation possible.
21	Connor, cited by Starr, Amer. Journ. Med. Sci., case lxv., 1884.	M. 17	Cystic glioma in right centrum semiovale under upper half of anterior central convolution, and invading frontal convolution.	Headache; optic neuritis; convulsions; gradual mental failure; delirium; loss of sphincter control; duration two years.	Spasms and paresis of left arm, increasing to paralysis in it four months before death.	Diagnosis possible four months before death. Operation possible then, but prognosis bad.
22	Janeway, cited by Starr, l. c., case lxvi.	M. 13	Glioma, size of orange, firm, lobular in upper two-thirds of right convolutions, extending into adjacent gyri.	Fall on head, followed in two weeks by headache, then by vomiting, in fourth month; death in fifth month.	Two weeks after fall paresis of left arm and leg; then spasms in left shoulder, arm, and hand; in five months left arm and leg weak, stiff; pain in left leg; left ear deaf; smell lost in right nostril.	Diagnosis possible at four months. Operation possible then with good results.
23	Reimer, in Steffan, l. c. p. 624.	M. 12	Six tubercular tumors in anterior central convolution of each hemisphere.	Headache; weakness; nausea; vomiting; blindness; duration two years.	Spasms in left leg and arm; spasms in right side; paresis of left leg and right face, and slight anæsthesia in both.	Chronic pneumonia; tubercular glands. Diagnosis of multiple tumor possible; operation impossible.
24	Seeligmüller, Jahrbk. f. kindheilk., xiii. p. 322.	F. 4	Tubercle in right anterior central convolution in middle third, size of cherry.	Tubercular glands in neck.	Spasms of left arm daily or oftener, followed by paresis of left arm for two months before death; internal strabismus of left eye.	Diagnosis and operation possible.
25	Duchek, in Bernhardt, l. c. p. 65.	M. 8	Tubercle in convexity of left hemisphere extending inward toward the optic thalamus.	General tuberculosis.	Spasms of right arm, extending to the face; later right leg involved in the spasm; finally, right hemiplegia.	Diagnosis and operation possible; operation unadvisable in view of general tuberculosis.
26	Gliky, in Bernhardt, l. c. p 66.	M. 15	Glioma in both right central convolutions with invasion of adjacent areas.	Headache in right temple; vomiting.	Spasms in left arm, with weakness, and finally, atrophy of the arm, without anæsthesia; left hemiparesis with twitchings in extremities.	Diagnosis and operation possible, early.
27	Morelli, in Bernhardt, l. c. p. 67.	F. 18	Tubercle in middle third of left posterior central convolution, extending forward and inward toward lenticular nucleus.	No tuberculosis elsewhere.	Spasms of right arm, followed by choreic movements in right arm; the spasm occasionally extended to the right leg; pain in right arm.	Diagnosis possible; operation possible and advisable.
28	Rosenthal in Bernhardt, l. c. p. 72.	M. 17	Tubercle in middle third of left anterior central convolution, involving second frontal convolution slightly.	Headache; vomiting; vertigo; tuberculosis not mentioned.	Spasm of right hand, extending to right face, followed by paresis in both; pain in right hand.	Diagnosis and operation possible.
29	Henoch, in Bernhardt, l. c. p. 74.	M. 2	Tubercle in middle third of left anterior central convolution; localized tubercular meningitis over left frontal lobe.	Somnolence; nystagmus of left eye; tuberculosis not mentioned.	Tremor of right arm; twitching of right corner of mouth; later, tremor of head and right leg, with spasms of right side of trunk and abdomen; paresis of right arm.	Diagnosis and operation possible after onset of paresis in arm.

TABLE II.—*Concluded.*

No.	Author; reference.	Sex, age.	Variety and position of tumor.	General symptoms.	Local symptoms.	Remarks.
30	Barling, Trans London Path. Soc., p. 42, 1887.	M. 12	Tubercular tumor at upper part of left central hemisphere at junction of anterior and middle lobes; on surface large as walnut, easily separable from brain tissue; similar smaller tumor on base of same hemisphere.	Convulsions; symptoms of albuminuria; mental dulness.	Spasms of right side without loss af consciousness continuing for five days, followed by partial paralysis of right arm with some jerky movement The paralysis increased and extended to right face and leg; death after five weeks.	Diagnosis and operation possible, but second tumor would not have been detected.
31	Duchek, in Bernhardt, l. c. p. 68.	M. 18	Tubercle of "summit" of left hemisphere in the central area, extending downward toward the optic thalamus; softening around it.	Convulsions.	Spasms in right arm and leg, often beginning in the leg; later, right hemiplegia.	Diagnosis and operation possible.
(*a*)	Sodermark, Jahrb. f. kinderhk., xxiii 462.	M. 3	Hard, gray tumor, size of pear, in left lateral ventricle; congestion of membranes.	Headache; vomiting.	Flexor contraction of right arm, and spasms of right arm and face occurring daily in attacks during which he cried and was alarmed, and in which eyes were turned to right.	Diagnosis and operation impossible; probable diagnosis of cortical tumor in motor area would have been wrong.
(*b*)	Rolland, l. c. p. 44.	F. 14	Sarcoma in left ventricle and in optic thalamus, undermining frontal convolutions.	Headache; blindness; growth of head; general weakness.	Attacks of right-sided spasms, beginning in right hand and extending to entire body.	Diagnosis and operation impossible; probable diagnosis of cortical tumor wrong.
32	Buzzard, Lect on Dis. of Nerv. Syst., pp. 429 and 437.	F. 14	Small red tumor, size of walnut in white substance of left hemisphere above middle of lateral ventricle.	.....	Epilepsy with loss of consciousness, aura beginning in left wrist, which was transferred to right wrist by circular blister.	Diagnosis and operation impossible; probable diagnosis from aura of tumor in motor area wrong. In last three, operation might have been undertaken, but must have failed.
33	Ciccimarra, in Bernhardt, l. c. p. 105.	M. 9	Echinococcus cyst, size of fist, in left parietal region, reaching lateral ventricle.	Headache; vomiting; convulsions; blindness; duration ten weeks.	Facial spasm on left side; hallucinations of light with blindness (Visual field not tested.)	Diagnosis and operation impossible.
34	Smith, in Bernhardt, l. c. p. 106.	M. 5½	Fibro-sarcoma, with cyst size of orange, in right parietal and occipital lobes.	Headache; weakness and tremor of all limbs; rigidity of back and legs; paralysis of sphincter; convulsions; optic neuritis; vomiting; nystagmus and internal squint.	(Visual field not tested.)	Diagnosis and operation impossible.
35	Henoch, in Bernhardt, l. c. p. 74.	M. 1	Tubercle, size of pigeon's egg, in left occipital cortex; tubercular meningitis.	Stupor; convulsions; apathy; anæsthesia.	(Vision and field not tested.)	Diagnosis and operation impossible.
36	Fleischmann, in Steffan, l. c. p. 625.	F. 8	Tubercle, size of hen's egg, in left occipital lobe; second tubercle in right hemisphere of cerebellum.	Headache for a long time; general convulsions; blindness, with optic neuritis.	Right eye first became blind. (Visual field not tested.)	Diagnosis and operation possible, if hemianopsia had been found; second tumor would have been undetected.
37	Koster, in Bernhardt, l. c. p. 108.	F. 5	Gliosarcoma, size of lemon, in left occipital lobe, nearly reaching thalamus.	Headache; delirium; optic neuritis; hunger; restlessness.	Difficulty in finding words in speech. (Sensory aphasia. Visual field not tested.)	Diagnosis and operation possible if hemianopsia had been found.
38	Huguenin, in Seguin on Hemianopsia, Journ. Nerv. and Men. Dis., p. 23, 1886.	F. 8.	Tubercular tumor near apex of right occipital lobe on mesal aspect in cuneus; second tumor at apex left frontal lobe.	Headache; optic neuritis; vomiting; insomnia; general convulsions; dementia.	Left homonymous hemianopsia; appeared late.	Diagnosis and operation possible after hemianopsia appeared; second tumor would have been undetected.
39	Bagg, cited by Starr, l. c., case xlii.	M. 13	Carcinoma in left temporo-occipital lobe.	Headache; blindness; exophthalmos; muscular pains.	Visual field not tested.	Diagnosis and operation impossible.
40	Mills, Journal Mental and Nervous Diseases, p. 716, 1887.	F. 12	Glioma of right temporal lobe 3 x 1½ x 1½ in, with extensive hemorrhage in cavity.	Fall, followed by headache in right temporo occipital region, where tenderness was present; slight blindness; stupidity; optic neuritis.	Paralysis of arm and paresis of leg on left side came on suddenly in seventh month; speech thick and indistinct.	Diagnosis and operation impossible, though carefully considered.

bly general convulsions. These present themselves in rapid succession because the situation of the tumor beneath the tentorium cerebelli is such as to obstruct the venous flow from the venæ Galeni, and the free interchange of fluid between and through the ventricles, and to produce both general hydrocephalus and a stretching of the dura mater which are supposed to cause many of the general symptoms of brain tumor. It may be remarked that while headache is almost invariably present in cerebellar tumor, and is often referred to the back of the head, it may be felt at any part of the head, and is as frequently frontal or temporal, as it is occipital. In many of the tumors here collected, the headache was entirely frontal. The pain does not indicate, therefore, the seat of the tumor. Tenderness to percussion over the occiput is, however, a valuable sign of cerebellar disease.

But, in addition to the general symptoms of tumor, there are local symptoms of great value. These are vertigo and cerebellar ataxia, or the staggering gait. The patient feels himself falling in a certain direction, staggers in walking, and often staggers toward one side with remarkable constancy. Time does not permit of a discussion of the origin of these local symptoms, but they are of great value. Their occurrence indicates that the middle lobe of the cerebellum is either the seat of the tumor, or is encroached upon by a tumor in the hemispheres. If they occur quite early in relation to the general symptoms, it is the middle lobe in which the tumor began. If they occur late, after many months of suffering, the tumor has started in a hemisphere, given rise to general symptoms, and has at last reached the middle lobe and produced the local symptoms. The question at once arises, In which hemisphere has it begun? And here we are often in the dark. Patients are said to stagger, in walking, away from the side on which the tumor lies. Nothnagel and Bramwell affirm this, and I have seen four cases in adults in which this has been true as shown by autopsy. But if there is no tendency toward one side in walking, there may be a tendency to fall forward or backward. As yet, no assertion is possible as to the significance of this symptom, as it is impossible during life to determine whether it is due to irritation or destruction of tissue.

When these symptoms fail it is sometimes possible to determine which hemisphere is invaded by the tumor, by observing on which side cranial nerve symptoms, such as strabismus, facial anæsthesia or paresis, deafness, or retraction of the head, appear. They usually come first on the side of the tumor, as this, by its presence, crowds the cerebellum down upon the base of the brain and presses on the nerves. Paralysis of one fourth nerve, though difficult to detect, is a valuable symptom, as it always occurs on the side of the tumor.

By compressing one side of the pons or medulla a tumor may cause paresis or numbness, or increased reflexes in the opposite arm and leg, and these symptoms may aid the diagnosis. Many of these local symptoms were present in a case under my care and subsequently seen by Dr. Lewis Smith, and they enabled a correct diagnosis of the seat of the tumor to be made.[1]

The diagnosis being made, the question of operation arises: Can tumors of the cerebellum be removed? The cerebellum presents but one of its three surfaces to the skull, and there is, as yet, no means of determining whether a tumor is near that surface or not. Any operation must, therefore, be primarily exploratory.

In case a tumor is seen upon the exposed surface, it may be removed. But great care should be observed in the manipulations about the cerebellar hemispheres in order that the medulla may not be compressed, or the pneumogastric nerves torn or stretched in the process. Three cases of cerebellar tumor in young persons have been removed, and in all three death occurred within forty-eight hours, apparently from shock, although no special reason for shock existed. These cases were as follows:

CASE I. *Tubercular tumor of cerebellum* (V. Horsley, *British Medical Journal*, April 23, 1887, i. p. 865).—Male, aged eighteen, had suffered from progressive symptoms; headache, vomiting, optic neuritis, increasing weakness of all limbs, especially the left arm and leg, and epileptoid attacks with turning of head and eyes to the right; mental state good. He had been in bed a year. Diagnosis, by Dr. Bastian, of tumor involving the right lobe of the cerebellum. A tubercular tumor seven drachms in weight was removed from the right lobe, but the patient died nineteen hours after operation.

CASE II. *Tubercle of cerebellum* (Bennett May, *Lancet*, April 16, 1887, i. p. 768).—Male, aged seven, suffered in April, 1886, from headache, chiefly frontal, vomiting; then gradual failure of sight occurred, and in July he was nearly blind. In July paralysis of the right sixth nerve was found and eyes were turned to the left. Optic neuritis was found in both eyes. Gait was staggering, chiefly backward and to the left. Mind was clear. In August, headache and vomiting were severe, he could not stand, and head was retracted. In October, he was blind; nystagmus was noticed; there was emaciation; and knee-jerk was lost on right side.

He was operated on by Dr. May: the cerebellum was exposed on the right side of the median line, and appeared healthy but bulged, and was felt to be hard at one spot. After incision a tumor was felt one inch below the surface. This was dug out with the handle of a spoon. It was larger than a pigeon's egg, hard on the surface, caseating at its centre. Hemorrhage was slight; but the child died of shock a few hours afterward.

CASE III. *Glioma of cerebellum; operation* (C. W. Suckling, *Lancet*, October 1, 1887, ii. p. 656).—Female, aged twelve, complained of headache and vomiting for one and a half years, then for nine months of weakness in the right arm and leg, and then for three months of severe headache in forehead above the right eye. For last month had noticed an inability to move the eyes outward to either side and l. > r. pupil, and gradual onset of double vision and blindness. From the first there

[1] Archives of Pædiatrics, vol. v. p. 278.

had been tremor in right arm on exertion. Vertigo had been present for some time, and staggering with a tendency to fall forward.

On admission to hospital, March 28, 1887, weakness of right arm and leg, and of left face, deviation of tongue to right; optic neuritis, nystagmus on any motion of eyes, loss of conjugate motion of eyes to right, and great impairment of the left. Diminution of knee-jerk, greater on right side, great staggering to left side; headache, vomiting, and vertigo were found.

The occipital bone was trephined over the left side, and the cerebellum exposed. The brain bulged out, and its tissue appeared darker and softer than normal. A part of the cerebellar substance was cut away, and the wound was dressed. The patient collapsed and died in forty-eight hours. The autopsy showed that the glioma had occupied the entire left lobe of the cerebellum and had invaded the middle lobe also.

In case no tumor is seen on the exposed surface of the cerebellum, what can be done? It is impossible to obtain access to the upper and anterior surfaces of the cerebellum from the posterior surface by pressing the organ to one side, for it is situated in a small cavity, and pressure downward causes dangerous compression of the vital nuclei of the medulla, while lifting it upward endangers the pneumogastric nerves. The only method of proceeding is exploratory incision. This was practised by May and revealed the tumor an inch beneath the cortex. He found the tumor encapsulated, and he removed it with ease, but the boy died in collapse.

The question will arise, How deeply can the cerebellum be incised? No facts are at hand to enable us to answer. It must be remembered, however, that in physiological experiments much of the cerebellar hemispheres may be removed without danger so long as the middle lobe and dentate nuclei of the hemispheres be not encroached upon. It remains to be seen whether the removal of a tumor of the middle lobe of the cerebellum, which has produced staggering gait, can be followed by recovery; but judging from physiological experiments it seems improbable.

The conclusion, therefore, regarding tumors of the cerebellum is that in about one-third of the cases the surgeon can reach the tumor; that the operation is essentially exploratory; and that it is much more dangerous to life than operations upon the cerebrum; and that no recoveries have as yet been recorded.

Multiple tumors form the next class in the table, and these must be at once dismissed as outside the field of operation at the present time. It may be remarked in passing that where numerous local symptoms are present in a case, which cannot be explained by a single lesion, the diagnosis of multiple tumor is justifiable.

The remaining classes are tumors of the cortex and tumors of the centrum ovale, fifty-six in number. Both these classes of tumors can be reached by the surgeon. There are no especial indications for their detection or removal in children as distinguished from adults.

The entire subject of diagnosis and removal of cortical and subcortical tumors has been so fully discussed recently, by Seguin and Weir, and by Keen in the *American Journal of the Medical Sciences*, that nothing remains to be said upon this point. It may be of interest, however, to consider these cases critically and to ask three questions regarding each, viz.: Could the diagnosis of the location have been made? If so, could the tumor have been reached? If so, was it of a nature to allow of removal?

In order to determine these points I have abstracted and tabulated forty of these cases, the remainder being of a character, both clinically and pathologically, to baffle both diagnosis and surgical treatment. Of these forty, there were thirteen in which a diagnosis of the exact position of the tumor could have been made during life, and an operation properly conducted would have resulted in the removal of the tumor. All of these cases[1] were tumors of the central convolutions, giving rise to local spasms followed by paresis. The starting-point of the spasm, its order of extension, and its limitation; the character of the paresis, its situation of greatest intensity or longest duration, when temporary, and its order of extension, were the symptoms in each of these cases which should have enabled the physician to determine the seat of the tumor. In none of them could the surgeon have been misled by following these signs of localization, and in all but two the operation would have been successful, as the tumors could have been reached and removed. In two, however, the tumor was gliomatous, and infiltrated the brain tissue too extensively to admit of complete excision.

In six cases among the forty a more careful examination of the case would have enabled a localization to be reached. Then in two cases of the central area the character of the spasms, and the order of extent of the paralysis were not recorded. And in three cases of the occipital region no test of the visual field was made, and hence hemianopsia, a very important localizing symptom, probably present, was not noticed. In five of these six cases[2] had the diagnosis been made, an operation might have been successful. In the other case[3] it would have failed, as there were several tumors.

In twenty-one of the forty cases the diagnosis of the seat of the disease was absolutely impossible, and hence no question of surgical interference could have arisen. It is true that in view of the post-mortem findings many of these tumors might have been removed successfully by operation had a diagnosis been reached.

[1] Cases 17, 19. 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, and 31.
[2] Cases 2, 18, 36, 37, and 38.
[3] Case 23.

Two cases of tumors within the brain have been added to the collection,[1] one in the optic thalamus, the other in one lateral ventricle, in order to demonstrate how both diagnosis and operation might fail. In both of these cases the symptoms might easily have led to a diagnosis of cortical tumors in the motor area, but had an operation been undertaken, no tumor would have been found. Such cases should serve as a warning. They teach that under the most careful examination diagnosis is never absolutely accurate, and that many operations must necessarily be exploratory. This latter fact, however, is familiar to surgeons, and need not prevent the progress of cerebral surgery.

To sum up the results of this analysis of forty cases, we may say that in nineteen an operation was indicated, and in sixteen it would have been successful.

In the collection of cases of subcortical tumor there remain sixteen not tabulated, because in all of these the diagnosis during life would have been impossible, and an operation would not have been feasible. These then must be added to the unfavorable cases. The result then is that sixteen cases out of fifty-six could have been successfully treated by excision.

Out of 300 cases then of brain tumor in children, 19 cases only warranted an attempt at surgical interference, and of these only 16 would have been successful.

When the character of these 16 tumors is studied, it is found that 3 were gliomata, 1 was an echinococcus cyst, and 10 were tubercular tumors, the others being undetermined. If it is thought unjustifiable to operate on tubercular tumors, there remain but 6 out of 300 tumors fit for operation.

It may be remembered that in a review of 100 tumors in the museum of Guy's Hospital, Dr. Hale White found 10 which might have been removed safely. His percentage, ten per cent., is much larger than my percentage—five per cent. including tubercular, and two per cent. excluding such tumors.

This conclusion appears to be very unfavorable to surgical interference in brain tumors in children. It is to be remembered, however, that in many cases the patients were only observed in a late stage of the tumor, when it had grown to such a size that early local symptoms were obscured, as they are likely to be, by later symptoms. And it is also to be remembered that at present the observation of nervous symptoms is more careful and accurate than in former years.

It is not too much to hope that the records of the next twenty years may show a much greater per cent. of tumors diagnosticated and successfully treated. But at the present day when the tendency is, perhaps, setting toward cerebral surgery, a conservative view, and a wholesome caution may be fostered by a study of the past, such as the present paper has given.

[1] Cases *a* and *b*.

A NOTE ON THE USE OF THE BIDET IN SURGERY.

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I DESIRE to call the attention of the profession to a method of treatment which, although not altogether new, is yet not appreciated as, in my judgment, it should be. I refer to a moderately forcible stream of water of varying temperature in the treatment of a number of affections of the rectum, anus, and genito-urinary apparatus. The atonic and astringent effect of such a stream of water upon any living tissue is, of course, a well-understood[1] fact, and has been employed in the arrest of hemorrhage, in the treatment of inflammation, and in various other conditions. But it has only been in exceptional cases, and usually by the aid of more or less troublesome apparatus that it has been used in the class of cases to which I now refer.

The bidet, as I have now for a few years prescribed it, should be of the variety which can be attached to the water-closet seat habitually used by the patient. It should have a nozzle capable of throwing a stream of about the calibre of an ordinary lead pencil or a little less. The head of water should be sufficient to make it impinge upon the parts exposed to it with enough force to excite there a little sensation of smarting and tingling. That degree of force will, for example, be sufficient to enable the patient to take an enema, or, if a female, to take a vaginal injection. The bidet pipe should be movable by means of a handle, so that the stream can be directed against any portion of the external genitals, the perineum, the anus, or the surrounding parts. It should also have connection with the hot and cold water supply of the house, so that the water may be used of any temperature which the physician may prescribe, or which the sensations of the patient may make desirable. Stopcocks should regulate the size and force of the stream, and should be so placed as to be easily reached by the hand of the individual sitting upon the water-closet seat. Such an apparatus can be put in place by an experienced plumber, in any ordinary water-closet, at an expense of from fifteen to twenty dollars; and, in this city at least, the usual head of water obtainable even in third-story rooms is quite sufficient for all therapeutic purposes.

The cases in which it may be desirable to use this

[1] Agnew (Surgery, vol. i. p. 445): "There is something peculiar in the action of a fine stream of water; it produces a much more energetic contraction of muscular fibre than that caused by bathing orsponging."

method of treatment may be divided into two classes: first, those affecting the lower end of the bowel and its outlet; second, those involving the genito-urinary system. Among the first the most important are hemorrhoids, internal and external, prolapsus ani, and slight cases of prolapsus recti; pruritus ani and eczema of the margin of the anus should also be included in this group of cases in which it has now for some time been my habit to prescribe the systematic employment, twice daily, of the bidet, once immediately after the daily stool, and for the second time, by preference, just before going to bed. As a rule, in all but the mid-winter months, the ordinary temperature of Schuylkill water is that to be preferred, although I am largely governed by the feelings of the patient in this respect. An enema should be taken at each of these times, the lower portion of the rectum being thus thoroughly washed out at least twice daily, after which the stream of water is allowed to play upon the affected region for a period of from five to fifteen minutes. The ordinary and useful effect of cool sponging or washing immediately after stool in cases of hemorrhoids is by this means enormously increased; internal hemorrhoids will, under this treatment, in many cases almost entirely disappear, unless they are exceedingly large and have been frequently inflamed or strangulated and badly neglected; external hemorrhoids, even when fleshy, will shrivel and become scarcely noticeable.

I could detail a number of cases of this character taken from my practice of the last two years. In some instances in which I had been habitually called in, at intervals of a few months, in the cases of old people the result has been practically their disappearance from my list of patients; and they speak in the warmest manner of the great comfort which they have derived from this simple method of treatment.

Perhaps nothing is more distressing among minor afflictions than the trouble described as pruritus ani, and variously attributed to liver disease, constipation, gastric troubles, latent gout, uterine disease, parasites, neuroses, and a number of other causes, varying from the eating of shell-fish, or excessive smoking, to alleged hereditary predisposition. There are very few practitioners of any experience who have not discovered how difficult it is, in any particular case of pruritus, to assign distinctly the annoying symptoms to any one of these causes. Often the whole list may be carefully gone through and eliminated, or the proper remedies may be applied successively, as different theories are adopted, without the slightest benefit resulting. Ointments, lotions, *ordinary* cool bathing will be tried in great variety, but without avail; and such patients will often go from one physician to another, or will fall into the hands of quacks while seeking relief. My list of cases of this character which I have now treated by means of the "bidet" comprises eight, one of which it may be worth while to mention in a little more detail.

Mr. —, aged thirty-five, a lawyer by profession, of somewhat sedentary habits, but in good general health, applied to me, in January, 1887, on account of a long-continued pruritus, which, he said, was simply making life miserable to him; he was a man of great intelligence, who had secured the best medical advice in this and other cities, and who gave a graphic description of his sufferings. Whenever, after sitting for a time at his desk, the buttocks and perineum became warm, itching would begin, and would presently become intolerable, so that he would be absolutely obliged to rise, and, if he was not alone, to make some excuse to leave the room, in order to obtain ease, temporarily, by scratching. At night, after he became warm in bed, his trouble—as is usually the case with such patients—became much worse, so that often a large part of the night was rendered sleepless, and the sleep which he did procure was broken and disturbed. He frequently awakened with a start, finding himself digging at the parts with his nails. He was losing flesh rapidly, was becoming unable to attend to the ordinary duties of his profession, was annoyed and mortified, even when in court trying cases, by the almost irresistible impulse which he felt to apply friction to the irritated region, and naturally was intensely depressed and despondent.

He brought me copies of the prescriptions which had from time to time been given him, and which covered almost the entire ground of the above mentioned list of possible causes. I had—fortunately for him and for myself—just been successful in a case of much less severity, in procuring relief and apparent cure by means of the bidet; I promptly prescribed it for him, instructing him, as it was January, to use the water at a temperature a little short of tepid, and prescribed, in addition, only an ordinary oxide of zinc ointment, for the relief of a little eczematous irritation produced by his scratching. His improvement was immediate and marked, and at the end of two weeks he said that he had merely a trace of his former trouble, which soon after entirely disappeared, and he has ever since remained free, although he has been compelled to take long trips away from home, and thus obliged to intermit his treatment.

Some of my other cases are of equally striking character. They have nearly all resulted in cure; requiring to attain that end simply different lengths of time of the application of the douche, with variations in the temperature of the water, and occasionally the use of some emollient salve. I have been particularly struck by the fact that these cases include among their supposed causes widely distinct conditions, and the uniformity with which they have yielded to this simple treatment has led me to regard with suspicion the orthodox etiology of the disease. In procidentia ani, and in slight cases of prolapsus recti, I have had

very satisfactory though, of course, less striking results. In a few instances the trouble almost entirely disappeared, and in all of them it was distinctly relieved. These cases require for their successful treatment a much longer application of the douche, and the water should, in my judgment, be at one or the other extremes of temperature, either quite cool, or as hot as can comfortably be borne.

I am quite aware that the use of cold water in these affections is not in the least a novel plan of treatment; but the method under consideration combines the effects of temperature with a sufficient force of the stream, and admits of the prolonged application of the remedy without effort on the part of the patient, who is in the most suitable position for this treatment, practical points which induced me to make this mention of my results in rectal and anal cases.

Agnew says of pruritus, that among the local remedies frequent ablutions with cold water should be mentioned; and of prolapsus ani et recti, that "in all cases where remedies have proved unavailing, or where patients have declined an operation, much good may be done by douching the parts with cold water and applying an oiled compress;" and Allingham says of the same class of cases, that "the frequent and bountiful application of cold water is to be most strongly recommended;" but few authors, so far as I know, have especially alluded to the method of application by means of a bidet.

My second class of cases includes, chiefly, certain prostatic troubles, varicocele, atonic impotence in the male, and pruritus of the vulva or vaginitis in the female. In cases of varicocele, although I have not succeeded in effecting a cure in any instance by this method, I have certainly seen advancing enlargements of the spermatic veins become stationary; long, relaxed, and pendulous scrotums become firm and much smaller; and the mental condition of the patient—which is so important an element in many of these cases—share in the improvement. In chronic prostatitis, a most intractable and distressing ailment in many instances, it has come to be a part of my routine treatment to order the use of cold perineal douches by means of the bidet, associated with frequent cool enemata given in the same manner; and I believe to-day that if I had to discard all therapeutic measures but one in these cases, I would retain this one. In a certain number of cases of impotence associated with general muscular weakness, loss of tone, lack of general strength and vitality, accompanied by imperfect or rapidly subsiding erections, I have found that the cold douche applied with some force and for considerable lengths of time to the perineum and testicles has been productive of marked benefit.

In two cases of pruritus vulvæ my results have been good, though less striking than in the similar disease affecting the region of the anus. In vaginitis, where the woman has sufficient intelligence to learn how to take an injection by means of the bidet, it offers an admirable method of cleansing the vagina, of carrying away thoroughly all accumulated secretions, of reducing heat and swelling, and at the same time of avoiding the frequent introduction into the inflamed canal of a foreign body in the shape of the nozzle of a syringe. My opportunities for observation in this class of cases have been limited, owing to the disinclination of these patients to procure the bidet, and owing to their irregular habits of life and their frequent changes of residence; but I have seen enough of its good results to make me feel confident that it is a valuable addition to our therapeutic agencies.

After all, in every one of the cases which I have mentioned, its use is simply the application of the most elementary and common-sense principles to everyday practice, but I am satisfied that this particular method of applying these principles has not received the attention which it merits.

A SUCCESSFUL CASE OF VAGINAL HYSTERECTOMY.

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AMONGST the moot points which are occupying the attention of the medical profession at this time, none, perhaps, is of more practical importance and interest than the subject of the treatment of cancer of the uterus. Everyone is familiar with this horrible disease, with its fetid discharge, frequent hemorrhages, disturbances of the functions of the bladder and rectum, and pain. The course of such a malady is too well known. The patient becomes disgusting to herself and to her friends alike, and the end is looked forward to as a blessed relief.

All surgeons agree that something ought to be done to mitigate the sufferings of those who are stricken with this fell disorder, and, if possible to effect a radical cure; but it is a disputed question whether a partial operation, one which aims to remove a portion of the uterus only, should be performed, or the complete extirpation of the organ. In favor of the partial operation is the very much smaller mortality of the procedure itself; against it is the fact that a cure is seldom effected, the fatal termination being usually only averted for a time. Again, a partial operation would be of no avail if the disease had either originated within the cavity of the uterus or had extended upward from the cervix. In favor of complete hysterectomy is the fact that the whole disease is much more likely to

be eradicated, and a permanent cure to be effected; whilst opposed to this advantage is a higher rate of mortality.

Such then is the question as it confronts us at this time. The weight of authority in Germany is in favor of complete extirpation, whilst in this country the conservative operation has, until recently, received universal professional sanction. It does seem to me, however, unreasonable that an exception should be made in the case of the uterus, to the accepted law, that the whole of an organ should be removed for malignant disease when such can be accomplished with a reasonable rate of mortality. Whilst opportunity does not serve me to go into an extensive consideration of the mortality of vaginal hysterectomy, it may be stated that the death-rate is diminishing each year, and has fallen from 29 or 30 per cent. to about 10 per cent., and will, probably, still further decrease as surgeons acquire a greater familiarity with the technique of the operation. Dr. August Martin, of Berlin, collected, in 1887, 311 cases with a fatality of 47 or 15.1 per cent., and this rate has still further decreased to between 10 and 11 per cent. Dr. Martin likewise states that 70 per cent. of permanent cures have been obtained by vaginal hysterectomy.

It is a duty which one owes to the profession to place upon record his cases, whether successful or otherwise, and in obedience to that mandate I publish the following case of total vaginal hysterectomy:

Mrs. S., widow, forty-two years of age, two children, now grown, was a fine-looking and healthy woman previous to the past eight months. For some months she has been having a foul discharge from the vagina, with metrorrhagia, but not much pain. She came under my observation in July, 1888, at which time she was anæmic and weak, with no appetite, a feeble, quick and thready pulse, constant cough, and unable to sleep. A vaginal examination revealed a large proliferating epithelioma of the cervix uteri, which nearly filled the vagina, but did not involve it. On September 6, 1888, the cervix was removed flush with the vaginal junction, with the curette and scissors, at which point the tissues were hard and apparently healthy; and the face of the stump was thoroughly rubbed with nitrate of silver. There was free hemorrhage until firm tissue was reached, when it ceased. The vagina was irrigated with hot water, which arrested all oozing. A pad of styptic cotton was placed against the stump, and the vagina partially filled with iodoform gauze. The anæsthesia, ether, was very well maintained, and her feeble pulse improved during the operation. The patient did exceedingly well, gained appetite and flesh, improved enormously in appearance, and in a few weeks was down-stairs and out.

After six or seven weeks, backache and shooting pains returned, necessitating the use of anodynes, and there was a tendency to bleeding; and upon examination the cervical stump was seen to be proliferating again. Total extirpation of the uterus was suggested as the only remedy likely to be of any avail, and the gravity of the operation was clearly explained. Without any solicitation on my part and against the urgent entreaties of her friends, the patient decided to submit to hysterectomy, remarking that she would rather die under the operation than live six months suffering as she did. At this juncture I availed myself of the opinion of my friend, Prof. Ashby, who agreed that the case was one suitable for extirpation. During the two weeks in which the patient was considering the advisability of the operation, the disease made steady progress, pain became constant, and her strength began to fail. November 13, 1888, was the day appointed for the operation, at which I was assisted by Prof. Jay, and Drs. C. Winslow, J. R. Winslow, and F. M. Latham. Ether narcosis. The bowels had been moved, and the bladder catheterized previous to operation. After cutting the vulvar hair, and washing and disinfecting the external genitals, the vagina was thoroughly irrigated with bichloride solution 1 : 2000

Operation.—Incised posterior vaginal wall with long scissors, and after cutting through the mucous membrane I gradually dissected up the tissues with the finger until the peritoneum was reached at a great distance from the vagina. The cervix was very friable and the vulsellum forceps kept tearing out, causing considerable hemorrhage, which obscured the field of operation. The anterior wall was now incised and after a long dissection the peritoneum was reached and opened. The lateral vaginal walls were divided around the cervix, and the fingers passed around the left broad ligament, and a stout double ligature carried from the anterior to the posterior opening, and firmly tied. As an additional security the ligament was clamped with two catch forceps, which were left *in situ*. The uterus was now completely severed from all its attachments on the left side, and brought down into the vulvar opening. The left ovary came into view and was removed; the right ovary was not seen. The right broad ligament was ligated and clamped in the same way as the left, and the uterus removed. Some bleeding points were clamped, and six pairs of forceps were left hanging out of the vagina. The vagina and pelvis were irrigated with hot weak bichloride solution, and then with plain hot water, until all oozing ceased and the water returned clear. It was impossible to prevent blood from getting into the pelvic cavity. The intestines came into sight, but did not interfere with the operation.

The operation was much more difficult than I had expected, owing to the size of the uterus, and the elongation of the supra-vaginal portion of the cervix, and the hemorrhage from the friable growth. I attempted to sew the mucous membrane and peritoneum together after the method of Martin, but could not accomplish it, and relied upon forceps instead. The vagina was packed with iodoform gauze around the forceps, and the patient put to bed under blankets and with hot bags placed upon her.

At the close of the operation the pulse was very

rapid and feeble, and shock was well marked. Upon recovering consciousness much pain was complained of, necessitating the administration of morphia. During the operation some ether got into the left eye, and this caused much discomfort, which was relieved by the instillation of a four per cent. solution of cocaine. The evening of the operation and the next morning the temperature remained normal, but on the evening of the second day it reached 101⅖°, and the next morning 101⅕°, dropping to 100⅘° on the evening of the third day. This transient rise of temperature was probably due to a localized peritonitis, as was evidenced by some abdominal tenderness and irritability of the bladder. The catch forceps were in about forty hours, and no hemorrhage followed their detachment and removal.

After the third day the temperature remained most of the time about 99½°, reaching normal on the tenth day. At first the urine was drawn, but once the patient was obliged to void her urine spontaneously, and afterward she continued to do so naturally. The pulse was quick and feeble prior to the operation, and has continued rather rapid since, ranging from about 120 during the first forty-eight hours down to 86 on the ninth day. The bladder was somewhat irritable at first, but soon became regular in its functions. Probably the most distressing feature of the case has been the formation of hardened feces, which were passed with difficulty and much pain. This constipation was probably due to the milk diet to which she was restricted. Another complication which was very much to be deplored was the formation of large sloughs from the hypodermatic injection of whiskey during the operation. The deep layer of iodoform gauze was not removed for a week, by which time it had become saturated and offensive. The wound by this time was reduced to a slit and was granulating nicely. The intestines were not to be seen. The dressings were removed at intervals of a few days, and the vagina irrigated. The discharge has been very slight from the beginning.

The patient sat up on the side of the bed for the first time on the fifteenth day. At this time a most unfortunate complication developed in the occurrence of erysipelas and cellulitis of the arm at the seat of an injection of whiskey. The arm became hot and painful, with much swelling, the temperature gradually increasing for four days until it reached 103°, and pulse 120. An abscess of considerable size was now discovered, and upon puncturing it a free discharge of pus took place with immediate relief of pain and a fall of temperature to 98⅘° by the next morning. The patient is still weak, more from the cellulitis than from the operation, but is able to sit up and to go from room to room, and I hope will soon be out of the house.[1]

This operation was delayed too long, and should have been performed when the disease was first discovered, but the physical condition of the patient did not justify such a severe operation at that time; and, moreover, the consent of the patient and her friends to the performance of hysterectomy was withheld.

1 MOUNT ROYAL TERRACE, BALTIMORE, MD.,
December 20, 1888.

[1] Since this paper was written the patient has been out riding.

A CASE OF HODGKIN'S DISEASE ACCOMPANIED WITH A POSSIBLE RESULTING PARAPLEGIA.

REPORTED BY LEWIS H. ADLER, JR., M.D.,
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IN an article in Pepper's *System of Medicine*, Dr. Wm. Osler describes this disease as being characterized by progressive hyperplasia of the lymph glands, sometimes also of the spleen, with anæmia, and the development of secondary lymphatic growths in various parts of the body.

It has various synonyms; those deserving particular mention are pseudo-leukæmia, general lympho-adenoma, lympho-sarcoma, adenoid disease, and malignant lymphoma. It is also called Hodgkin's disease, after the physician who first studied and called the attention of the profession to it.

The case which I wish to describe is that of a married white woman, M. J. F., æt. twenty-six, a native of this State. She was admitted into the wards of the University Hospital August 31, 1888, under the care of Dr. H. C. Wood.

Dr. Joseph Leidy, Jr., was at that time Dr. Wood's resident, and from notes taken by him I glean the following as the patient's condition upon admission: She was unable to use her lower extremities; the muscles of the legs were wasted and flaccid; responded well to electricity (faradic current). Reflexes were good, possibly increased. Sensation unimpaired. There was a large bed-sore over the sacrum, and another commencing over the right trochanter major. Pressure over the spinal column elicited pain; particularly from the fourth to the sixth dorsal vertebræ. In the lumbar region a marked lateral curvature to the right was noticed.

Her family history, which I obtained, was good. No scrofula or specific trouble evident. Was always healthy up to time of marriage, which occurred when she was twenty-three years old. Said that "she had never taken a drop of medicine up to that date." Her husband and his family were all healthy, so far as I was able to ascertain. She menstruated at thirteen; was always regular except when pregnant. Since marriage has had two miscarriages; one at three months, the other one month sooner. Assigned as a reason for this trouble, heavy lifting.

Four months before admittance to hospital she was delivered of a healthy child at full term. Shortly after this pregnancy, the cervical glands only, and of the left side, became swollen and hard, but not painful, with no tendency at any time toward suppuration. She never was in perfect health after her first miscarriage, which happened six months after marriage. It left her not only very weak but exceedingly nervous. Under a physician's care she

improved greatly. She again became pregnant, and again miscarried, this time at the end of two months.

Her third pregnancy, which ended four months before coming to the hospital, resulted, as previously stated, in the birth of a fine, healthy, full-term, male child. When three months gone she felt as though she was about to abort again, but was put to bed and carefully nursed; which undoubtedly prevented a return of former occurrences.

Three weeks after this confinement she was taken suddenly with sharp pains in the dorsal region, which extended up the spinal column. A week later she noticed that her strength was deserting her, shown by becoming tired and exhausted without apparent cause. This condition of affairs grew rapidly worse, and in a few days she was unable to stand upon her feet. Her legs were both numb and painful, and power of moving same was soon entirely lost. At the end of nine weeks she had no control over contents of either bladder or bowels.

On September 15, 1888, I assumed Dr. Leidy's place as Dr. Wood's resident. A careful examination of the case at that time revealed the following condition of affairs: The patient was very anæmic looking, and had lost, as she stated, considerable flesh. Her tongue was pale, furred, and heavily coated; edges clean. There was a marked inequality of pupils of eyes. Also an otorrhœa of the left side. Upon the same side of neck there was an irregular mass of glands, hard to the touch, but not tender, about the size of an ordinary child's head. The right side had a few enlarged glands; in all, not larger than a pigeon's egg. The skin was free and movable over this region. In the left axilla there were several large lumps; none in the right side. The left arm was somewhat œdematous, possibly from pressure upon the axillary veins. The inguinal glands were slightly enlarged, but equally so upon both sides. No enlarged glands or tumors could be felt within the abdominal cavity. The spleen and liver were both normal in size. There was some œdema of the feet and ankles, which was attributed to the sluggish circulation. Examination of the heart revealed a low-pitched, soft systolic murmur over its base, which was undoubtedly anæmic in origin. The murmur was also accompanied by a venous hum in the neck. The pulse though rapid, was weak, varying from 90 to 130 per minute. The lungs were healthy, except over bases, where they were somewhat dull upon percussion, and respiratory sounds were feeble. There was fever present of an irregular, hectic type, which, during the last two weeks of the patient's stay in the house became continuous in character, with evening exacerbations.

From just above the umbilicus there was found to be complete loss of motion and sensation of all the parts of the body below. And, as in the case described by Dr. James H. Hutchinson (*Trans. of the College of Physicians of Philadelphia*, series 3, vol. i.), the line of separation between the parts where sensation was preserved and where it was lost was sharply defined by dragging a pin along the surface of the abdomen. Likewise there was a sense of constriction, as of a band, at the point separating the paralyzed from the sensitive portion of the body.

Unlike Dr. Hutchinson's case, there was in this patient a tendency to contraction, and spasmodic twitching of the muscles. They were not, however, very marked. The knee-jerk upon the right side was below normal; that upon the left side was about right. She complained constantly of headache and burning pain in the lower portion of the body, especially in the feet and toes—which were relieved by large doses of morphia.

The decubitus of patient was a curious one. She lay constantly with her knees bent and her legs drawn up. What significance to give this, except there be some meningeal trouble could not be determined.

The urine was examined and found to contain an excess of phosphates and urates, but no albumin. Specific gravity of 1025, and reaction acid. Examination of the blood, made for me by one of my colleagues in the hospital, Dr. Alfred C. Wood, showed the count of red blood-corpuscles to vary at different times from 3,500,000 to 2,500,000, the last estimate being the one made just before the patient left the house; she having been told that her case was hopeless, and her husband wishing her home.

No treatment proved of any use. To procure sleep and relieve pain, opiates constantly were resorted to, but no remedy did any good so far as the general disease was concerned.

She left the hospital November 23d, and died six days afterward. No post-mortem was allowed. It is more than likely that the paraplegia in this case resulted from a lymphoid tumor or tumors pressing upon the spinal cord, as in the case already alluded to of Dr. Hutchinson's, and in that of a similar case seen by Dr. William Osler, at Montreal.

The cause of the disease is a matter of conjecture, as it is in almost every other reported case. The otorrhœa, which Virchow believes generally precedes the disease when it starts in the neck, in this case followed it, showing that it was a sequence and not a cause of the trouble.

The curvature of the spine, previously mentioned, which existed in this case, was unquestionably due to disease of the vertebræ, a result of the general affection—for we know that in this trouble the bones are often found diseased.

41 NORTH TWELFTH STREET.

MEDICAL PROGRESS.

Naphthalin in Intestinal Catarrh.—DR. HOLSTI (whose work is mentioned in the *Nordiskt Mediciniskt Archiv*) has tried naphthalin for intestinal catarrh with foul-smelling secretions. The dose for adults was eight grains four or five times a day, but it should not be given for a longer time than from ten to fourteen days. For children of from one to two years old, he gave two to three grains four times a day. In all cases, both in adults and children, there was an improvement at the com-

mencement. Sometimes there was a relapse, notwithstanding the renewed use of the naphthalin. Dr. Holsti specially recommends it in severe chronic enteritis where other drugs have been employed without effect. He found no injurious effects from its use in adults; in one case—that of a child a year and a half old—the use of naphthalin in doses of two grains four times a day was followed by great anæmia, although the intestinal catarrh was much benefited. Hence Dr. Holsti advises care in the administration of naphthalin to children, especially when given for a lengthened period. He found it fail in two cases.—*Lancet*, December 22, 1888.

The Virulence of Tuberculous Sputum.—DR. DE TOMA, of Lesa (*Annali univ. di med. e chir.*, March, 1888), made a number of experiments to determine the virulence of tuberculous sputum, and obtained the following results:

1st. Tuberculous sputum excluded from the air and kept at a constant temperature of 68° F., retained its virulence up to the ninth or tenth day; and the tubercle bacillus, under the same conditions, up to the fourteenth or fifteenth day.

2d. Tuberculous sputum which had been exposed to the air retained its virulence from two to nine days, while the tubercle bacillus lived from six to fourteen days.

3d. Microbes from the mouth and nasal secretion which had found their way accidentally into the sputum, did not, as a rule, when inoculated, hinder the action of the tubercle bacillus, except when mixed with a large quantity of phlegm, in which case they developed more rapidly than the tubercle bacillus, and became on their own part an infectious medium.

4th. Decomposition destroyed the virulence of the sputum within three to nine days, and killed the tubercle bacillus within six to fourteen days.—*Centralbl. f. klin. med.*, Dec. 15, 1888.

Intermittent Hydronephrosis.—Under this heading, DR. LEOPOLD LANDAU, Professor of Gynecology at the University of Berlin, publishes four cases of a disease but little known (*Berlin. klinische Wochenschrift*, Nos. 47 and 48). The definition is limited to those cases in which the pelvis of the kidney varies, from time to time, between distention and emptiness, in the absence of other disease which might exhibit this symptom—for example, passage of renal calculus, malignant disease of the bladder, etc.

The symptoms described are more or less severe pain in the side, lasting from hours to days, and recurring at intervals, associated with nausea and vomiting, general gastric disturbance, cardialgia, etc. The flow of urine is scanty during, and profuse after the attack. The existence of a swelling which sometimes disappears may be known to the patient, or a hard, non-fluctuating tumor, separated from the liver by resonance, may be made out on palpation. As, after a time, the urinary elements of the fluid are reabsorbed, they may not be found by exploratory puncture, but the acidity of the fluid would be enough to fix the diagnosis. Dr. Landau maintains that spasm of the ureter alone would not be enough to account for the largely distended renal sac, and points out how the ureter may be occluded by torsion or tension, when the kidney is abnormally movable, or when pulled upon by prolapsed genitalia with cystocele, or when the ureter is inserted at a more acute angle. Thus, the pelvis is distended until the pressure is sufficient to overcome the obstruction. With each attack it loses elasticity, and dilates gradually into a large sac, which drags the kidney downward, thus aggravating the mechanical disadvantage of the contained fluid, for the ureter is inserted then at the top of the sac instead of at the bottom, and is also in greater measure pulled upon, twisted, or "kinked." Finally, neither the recumbent position nor manipulation may be able to effect evacuation, and the cyst becomes permanent and the kidney atrophies. Of the cases, one went on, after repeated attacks, to pyelitis, and is interesting from the fistulous opening then made in the side having persisted discharging clear urine for eight years, with but slight inconvenience to the patient. Two others showed a cessation of the symptoms during pregnancy—when the kidney was kept in position by the gravid uterus. One of them was relieved, on the recurrence of the attacks after confinement, by external pressure by means of an abdominal bandage. All the cases were of women from thirty to sixty years of age.—*British Medical Journal*, December 15, 1888.

Benzoate of Sodium in Diphtheria.—DR. BRANDEL, having treated a large number of cases of diphtheria with benzoate of sodium, reports his *modus operandi* as follows:

Internally. Administer every two hours, morning and night, a tablespoonful of the following:

℞.—Benzoate of sodium . . . ℥ss–℥jss.
Syrup of acaciæ . . . . ℥iij.—M.

Externally. Apply every hour, day and night, the following solution:

℞.—Benzoate of sodium . . . ℥iij.
Water . . . . . ℥v.—M.

Further: evaporate near the bed of the patient a mixture of phenic acid, eucalyptol, and oil of turpentine. The diet to consist of milk, the juice of meats, and cinchona or Malaga wine.

In itself, this treatment is not new, but its simplicity recommends it. Success is said to depend upon the purity of the benzoic acid used.—*Revue de Thérapeutique*, Dec. 13, 1888.

Determination of Albumin in Urine.—DR. SCHAUMAN, in *Zeitschrift für Analytische Chemie*, vol. xxvii. part 5, proposes a modification of the gravimetric method for the determination of albumin in urine. Instead of the ordinary paper filter, he uses a plug of cotton-wool freed from fatty matter, and pressed firmly into a glass tube drawn out to a narrow point. For this purpose a filter tube is adapted, as introduced by Allihn for the determination of sugar. This tube, with its cotton plug, is dried at 110°, and weighed. It is then fixed firmly by means of a cork, in a filter support, which is, in turn, connected with a filter pump. The albumin in a weighed quantity of urine is precipitated in a beaker by the addition of a small quantity of acetic acid, and heating for half an hour on the water bath. The clear supernatant liquid is first poured into the tube. The coagulum, which adheres rather firmly to the bottom of the beaker, is repeatedly washed with hot water, and the washings carefully

poured upon the cotton before the preciptated albumin is introduced. This is then washed with hot water, with the aid of a filter pump, until the liquid running out, no longer gives a chlorine reaction with silver nitrate. The tube is then closed at the wider end with a cork, perforated to admit a glass tube. It is then placed in a small rectangular drying box of sheet iron, provided on each of its two opposite sides with a circular aperture, into which the filter tube is inserted. The end having the perforated cork is connected with a calcium chloride tube and a washing bottle charged with sulphuric acid, whilst the drawn-out end is connected with an aspirator. For an hour a moderately rapid stream of dry air is drawn through the filter tube. The temperature in the drying box is gradually raised to 100°, and, after heating to this point for an hour, it is raised further to 110°, dried air being still drawn through in a moderately strong current. After heating for two hours at 110°, the tube is weighed and reweighed every half hour until the weight is constant.—*British. Med. Journ.*, December 22, 1888.

The Relative Power of Different Antiseptics.—DR. G. MARTENS describes in his work upon this subject the results obtained from the action of a large number of antiseptics upon pus-germs (staphylococcus pyogenes albus, aureus, citreus; streptococcus pyogenes). The experiments were made to determine the germ-destroying power, as well as the arrest-of-growth power of the various antiseptics; part of these proved to be germ-destroyers, while the action of others was either indifferent or negative.

In a solution of 1 : 10,000, iodine only was found efficacious in destroying pus-germs; iodoform was neither able to destroy the pus-germs, nor to hinder their growth; the same is true of iodide of potassium. Next to iodine, thymol was found to be the strongest antiseptic, destroying pus-germs in a solution of 1 : 5000 within one minute; the addition of a solution of 1 : 10,000 to agar-agar prevented the development of these cultures.

In a solution of 1 : 1000, the pus-germs were destroyed as follows: Within forty-five seconds by javelle water; within two minutes by nitrate of silver; within one minute by nitric acid; and only after the lapse of five minutes by muriatic acid. Sulphuric acid in the proportion of 1 : 100 within forty-five seconds. A sublimate solution, 1 : 1000, was destructive to the pus coccus in sixty minutes, while in a solution of 1 : 100 it acted instantaneously.

A solution of benzoic acid 1 : 500 acted within seven minutes; salicylic acid 1 : 300 acted within one to two minutes.

In solution of 1 : 100 chloride of iron acted within fifteen seconds; chlorinated lime within fifteen seconds; acidulated sulphate of potassium within thirty seconds. A five per cent. liquefied carbolic acid destroyed the pus-germs instantly; a three per cent. solution within fifteen seconds; while a one per cent. solution required from one to three minutes for operation. A one per cent. solution of permanganate of potassium only proved effective after the lapse of ten minutes. Chinoline, chloride of copper, resorcin, in a one per cent. solution, were slow in operating; acetate of aluminium, in a one per cent. and stronger solutions, requiring an entire day for action.

In dilutions of 2 : 100, acetic acid was destructive within ninety-five minutes; oil of turpentine, pure, immediately, while in dilutions of ten per cent., to three per cent. and one per cent., it proved less active.

In solutions of 5 : 100, chloride of zinc acted within forty-five seconds; a four per cent. solution of boracic acid required ten days, while borax was entirely inactive.

A ten per cent. solution of caustic potash destroyed the pus-germs within five minutes, while a fifteen per cent. solution proved effective within fifteen seconds. Nitrate of lead had no special antiseptic power; a ten per cent. acetate of copper solution required twenty-one hours; a chloride of calcium solution, twenty-eight hours; a citrate of iron solution, twenty-four hours; and antipyrin, ten days to destroy the pus-germs.

A fifty per cent. solution of cadmium sulphate destroyed the germs in one and a half minutes; lead acetate in fifteen hours, and acetate of sodium in ten days.

Fifty per cent. alcohol solutions proved effective in ten minutes; cold saturated solution of nitrate of bismuth was effective in one hour and forty minutes; limewater, in twenty hours; sal-ammoniac, in twenty-four hours; aqua ammoniæ, in six days; sulphite of ammonium, after twenty-four hours.

The following preparations proved ineffective: Iodide of potassium, bromide of potassium, nitrate of potassium, caustic potash, pearlash, chloride of sodium, sulphate of sodium, borax, hyposulphite of sodium, carbonate of ammonium, sulphate of zinc, oxide of copper, and others.—*Centralbl. für klin. med.*, Dec. 15, 1888.

Toxic Symptoms after the Subcutaneous Injection of Cocaine: Amyl Nitrite as an Antidote.—UNKOWSKY (*Vrach*, No. 4, 1888) has frequently noticed slowing of the pulse, dizziness, dyspnœa, paleness of the skin and mucous membranes, general weakness and, at times, unconsciousness after the subcutaneous injection of one to two syringefuls (15 to 30 minims) of a four per cent. solution of cocaine ($\frac{3}{5}$ to $1\frac{1}{4}$ gr.) for minor operations; these symptoms all usually disappeared within five or ten minutes. The author at first, thought that the manifestations were not dependent on the small amount of cocaine, but rather upon nervous excitement and the fear of operation. The following case, however, demonstrates the toxic influence of even relatively small doses of cocaine subcutaneously administered. Two syringefuls (30 minims) of a four per cent. solution were injected under the skin of the scrotum of a robust, fifty-six-year old man, with hydrocele. In a few minutes there were great restlessness, severe oppressive pain in the back, particularly in the lumbar region, relieved somewhat by friction of the back, then there was striking pallor of the countenance and the visible mucous membranes, dizziness, dryness of the mouth and throat, dyspnœa, pulse retarded and small; the patient complained that he could not see; everything appeared uniformly white to him; finally, there were general weakness and complete inability to move the limbs, as in chloroform narcosis. The pain in the back and the difficulty of breathing occurred in paroxysms, the attack, with the general collapse, at times threatening life.

During such attacks amyl nitrite was given by inhalation until the dyspnœa diminished and the pallor disappeared. An hour was thus spent. the patient inhaling about fifteen minims of amyl nitrite and receiving three syringefuls of ether by subcutaneous injection. Gradually the manifestations disappeared and the operation was proceeded with, complete insensibility to four per

cent. solutions of carbolic acid, to the passage of the needle, etc., existing and with complete inability to move the extremities. A half-hour later none of the symptoms remained. The author reports another case, in which one hour after the injection of a half syringeful (7½ minims) of a twenty per cent. solution (1½ gr. of cocaine) under the gum of the mouth, psychical disturbances occurred: and in still another, six hours after the injection of a syringeful of a four per cent. solution in the cheek, mild symptoms arose similar to those described.—*Therapeutische Monatshefte*, October, 1888.

β-Naphthol in Enteric Fever.—From a careful clinical study of the use of β-naphthol in typhoid fever, DR. J. MICHELL CLARKE, of London, draws the following conclusions:

1. That the production of intestinal antisepsis is a rational mode of treatment of enteric fever, and that β-naphthol is a safe and tolerably efficient agent for this end.

2. That by its use in the above cases the duration of the disease was shortened, and the intensity of the symptoms directly arising from profound disturbance in the alimentary canal was lessened.

3. That the tendency to the occurrence of splenic enlargement, albuminuria, and of secondary complications such as boils, abscesses, etc., of purulent infective origin, is diminished.

4. That complete convalescence is more speedily and satisfactorily attained: and that there is less risk of a propagation of the disease to others.

Finally, we must bear in mind that in some patients naphthol may excite so much gastric disturbance as to prevent its use.

β-naphthol was administered suspended in milk, and a small quantity of pure milk was taken after the dose. The doses must be administered frequently, in order to keep up a constant effect, and small doses have also the advantage of not giving rise to the pungent after-taste in the throat that naphthol is apt to produce. To adults it may be administered in gelatine capsules, or the following formula, which seems the most satisfactory after several trials, may be made use of:

℞.—β-naphthol	. . . . .	gr. xx.
Tr. aurantii	. . . . .	℥ij.
Syr. limonis	. . . . .	℥ss.
Mucilaginis tragacanthi	. .	℥iij.
Aquæ	. . . . .	ad ℥vj.

Dose, ℥j.

Taste, however, is practically abolished in most cases of enteric fever, and the patients to whom it was given in milk made no complaint on this score.

Out of seven cases, four—of whom two were boys of twelve years—took the drug in doses of three and a quarter grains every two hours during the whole course of the disease, until the temperature remained normal for five or six days; one boy, aged ten, took gr. iss instead of gr. iij doses.

Whilst giving naphthol it is also advisable to control the pyrexia that necessarily occurs in the course of enteric fever, and so prevent the damaging effects on the tissues and organs of the body of a long-continued high temperature; we should, therefore, together with naphthol administer an antipyretic, preferably perhaps antifebrin or phenacetin, whenever the temperature rises beyond a certain height, say, 102° F.—*The Practitioner*, December, 1888.

External Application of Chloral Hydrate in Night-sweats.—DR. NICOLAI (*Gazette Médicale*) has obtained very favorable results from the use of chloral hydrate in the night-sweats of phthisis. Every night before retiring the entire body of the patient was sponged with the following:

℞—Chloral hydrate	. . .	℥ij.
Alcohol Water	. . . .	āā ℥iij.—M.

Should this not suffice, the patient's night-dress is saturated with this solution, then allowed to dry, and worn.

This mode of treatment also gave excellent results in the night-sweats of children the result of phthisis. Two or three of these spongings will generally suffice to check a sweating which has persisted for two or three weeks.—*Bull. Thérapeutique*, Dec. 13, 1888.

Ammonium Sulpho-ichthyolicum in Erysipelas.—DR. W. L. SCHADKEWITSCH (*Medizinskoje obosrenje*, 1888, No. 12) has found equal parts of ammonium sulpho-ichthyolicum and fat to be an excellent remedy in the treatment of erysipelas, in which disease it limited the pain and duration of the attack.—*Centralbl. f. Chirurgie*, Dec. 15, 1888.

Poisoning by Antifebrine.—A bookbinder, aged thirty-eight years, obtained thirty grains of antifebrine from a druggist in Berlin for a headache, and, after twenty-four hours, thirty grains more, each quantity to be taken at one dose. A quarter of an hour after taking the second dose, the patient experienced great depression, with cold sweats, vertigo, anxiety, and heavy palpitation of the heart, with small and frequent pulse. The face and hands soon became dark and bluish. After the administration of some black coffee and castor oil, and the application of a mustard plaster to the abdomen, the blue color disappeared; by degrees the other symptoms followed, except the faintness, which lasted several days.—*Apoth. Zeitg.*

Salol in Children's Diseases.—DR. DEMME has lately published his experience of salol in children. He has used it in four cases of articular rheumatism, two of acute endocarditis, two of vesical catarrh, and also as an external application in two cases of burn. Two of the patients, aged eight and thirteen, were suffering from acute rheumatic polyarthritis. Forty grains of salol were administered in twenty-four hours, in divided doses. The doses were continued during five days in one case, and seven days in the other. When the temperature fell, the daily dose was reduced to twenty-four grains. The effects of the salol were not rapid, but there was no relapse, and the affection only lasted fifteen to sixteen days. Fifty-eight grains of salol were administered at intervals to a girl of seven, suffering from rheumatism. The temperature fell from 39.8° C. (102.9° F.) to 37.2° C. (98.8° F.) in forty-eight hours, and the pain and swelling in the feet, right knee, and left elbow were considerably diminished. In the case of another little patient of nine, the results were not so favorable, and

the salol administered as an emollient or in a lozenge, caused vomiting in from ten to fifteen minutes. A double dose, administered in the yolk of an egg, produced general urticaria in eight or ten hours, without having any effect on the fever or the state of the articulations. Salicylate of soda was substituted, and some improvement followed, but the eruption returned. The patient recovered eight days afterward, but had a relapse. Fifty-eight grains of antipyrin were then administered for four days, at the end of which the patient was completely cured.

In endocarditis, salol gave good results if the action of the pulse was modified by digitalin. In a case of cystitis caused by cantharides, salol also proved beneficial. Daily doses of from fifteen to twenty-four grains soothed the pain, increased diuresis, and caused the alkaline reaction and the muco-pus in the urine to disappear. Toward the end of the treatment the urine assumed a greenish-brown hue, resembling that produced by carbolic acid.—*British Med. Journ.*, December 22, 1888.

The Use of Defibrinated Blood in Chlorosis.—DR. BLONKVAJEFF (*Gaz. clin. de Botkin; Riform. Med.*, No. 251, 1888) undertook a number of clinical experiments to study the therapeutic value of defibrinated blood. Thirty-one patients in various stages of chlorosis were given, twice daily, from two to four ounces of defibrinated calf's blood. The first dose (at noon) was taken in the fresh state, and the second dose, which in order not to putrefy had to be frozen, was taken at seven o'clock. Calf's blood is not so disagreeable to the taste as that of the ox or dog; according to the statement made by some of the patients, it is pleasanter to the taste than many of the iron preparations. Only rarely did the patients complain of a sense of repugnance, and that only at the beginning of the treatment. Frozen blood has no taste at all, but when dissolved it was found less agreeable than fresh blood.

The results of the treatment were the following:

1. Upon the temperature. With patients in whom the temperature was slightly elevated, a return to the normal was noticed after a few days of treatment. The greater number of patients showed a subnormal temperature, which, under treatment, gradually rose to the physiological height.

2. The pulse, at first increased in frequency, became by degrees slower and rhythmical, and retained these properties no matter what position the patient assumed.

3. The dyspnœa disappeared toward the end of the treatment. Patients who at the beginning of the treatment were easily fatigued on mounting stairs, could, toward the end, run up and down, walk briskly, and dance without effort.

4. The body-weight of the patients increased.

5. The appetite increased; the patients slept better and felt stronger.

6. The color of the skin assumed a healthy hue from the start.

7. Headaches disappeared; the same was noticeable of other anæmic symptoms, such as toothache, lumbago, œdema of the face and legs, and perspirations, etc. All nervous excitement abated.

8. The bowel action became more regular; constipation was never produced; and even those patients suffering from diarrhœa could take the defibrinated blood, of course only in small doses.

9. The blood of the patients gained in hæmoglobin and red blood-corpuscles.

10. The quantity of urine and the chlorides therein contained were increased.—*Centralbl. f. d. ges. Therapie*, December, 1888.

Carbolic Acid in Palpebral Affections.—DR. SÉDAN (*Recueil d'Ophtalmologie*, 1888) advocates the following: Take six drachms of cocoa-leaves, eight ounces of water, and fifteen grains carbolic acid; make a decoction. Apply with an ordinary perfume vaporizer, every half hour, each application lasting from five to six minutes. He claims to have obtained better results with this, than with any other treatment. These applications produce a resolution of the inflammatory condition, a suppression of the insupportable itching, and almost complete anæsthesia. In treating sensitive eyes, it would be well to interpose a layer of cheese-cloth before applying the spray.—*Revue de Thérapeutique*, Dec. 15, 1888.

The Treatment of Digestive Disorders in Infants.—At the clinic of DR. ESCHERICH the stomach-pump plays a most important part; especially in stomach affections of infants, in which its application has been followed by good results. Of medicines, Dr. Escherich often uses salicylate of bismuth, the administration of which is preceded by small doses of calomel (three-quarters of a grain being the maximum dose) in order to obtain a slight disinfectant action upon the mucous membrane of the intestinal tract. Milk is entirely withheld, and in its place a diet is given from which all traces of sugar are excluded. Thus the white of an egg with Russian tea—the last as a light stimulant and astringent—forms a pleasant as well as a nourishing potion. Besides this, beef extracts, or calf soup, an alkaline reagent, or peptonized foods are permissible. After two or three days small potions of sterilized milk are again administered.—*Correspondenzblatt für Schweiz. Arzte*, December 15, 1888.

Lantanin, a New Antipyretic.—DRS. ROUIZA and NEGRITA, of Lima, obtained from the Brazilian Lantana an alkaloid called *lantanin*, which acts upon the circulation like quinine; besides lowering the temperature, it has the advantage over quinine of being tolerated by the most delicate stomach. Its antipyretic action has been established in cases of intermittent fever, in which the sulphate of quinine proved useless. It would seem that the fall of temperature was due to the specific action which this drug has over the existing morbid condition.

It can be administered in pills of two grains each, one pill at a dose, giving as much as thirty grains in twenty-four hours.

To prove effective the administration should be made directly after a paroxysm, which ordinarily does not reappear. Some difficulty might be encountered in employing a tincture of lantana, as no corrective has thus far been found for its intense bitterness.—*Revue de Thérapeutique*, December 15, 1888.

For Chapped Nipples.—DR. MONTI advises to cover the fissures with a layer of traumaticin (ten parts gutta-percha dissolved in eighty parts of chloroform), which covering, thus formed, will protect the nipples against the action of the infant's saliva.—*Gazette de Gynècologie*, December 15, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JANUARY 12, 1889.

ATROPHY OF THE SECRETING GLANDS OF THE STOMACH.

THE obscurity which always surrounds the diagnosis of atrophy of the gastric mucosa has been brought prominently into notice by the death of a well-known physician of this city, in whose case this diagnosis was accurately made—post-mortem.

There is no single symptom common to all cases of this disease, and this arises from the fact that the function of the stomach is exceedingly complex, and may be, to a large extent, supplemented by that of the intestine. As is well known, a certain number of cases of atrophy of the gastric mucosa present the clinical picture of pernicious anæmia, whereas others —and these form the majority—are not associated with this degeneration of the blood. The explanation of this perplexing anomaly given by LITTEN in a recent number of the *Deutsche medicinische Wochenschrift*, is probably correct, viz.: that in those cases in which profound anæmia is absent, the motor power of the stomach is sufficient to propel its contents, in physiological time, into the duodenum.

Although no one of the numerous symptoms of gastric atrophy is diagnostic, the entire group, taken in connection with a chemical examination of the gastric secretions, suffice to render the diagnosis almost certain. The more difficult question whether the atrophy exists alone as the terminal stage of a chronic catarrh, or as an extension from a carcinomatous deposit, is to be decided chiefly by the clinical history and the age of the patient. The data upon which is based the diagnosis of atrophy, are cardialgia, the absence of mucus and of hydrochloric acid from the gastric secretions, and the diminution or complete loss of the functions of digesting albumin and of curdling milk. In addition, the absorbent power of the stomach may be impaired, as observed by Litten, who was unable to detect iodide of potassium in the urine of patients with gastric atrophy until several hours after it had been swallowed.

JAWORSKI (*Verhandlungen des* VII. *Congresses für innere Medicin*) believes the absence of pepsin and milk-curdling ferment (Labferment) to be the distinguishing marks of gastric atrophy. The secretion of these enzymes is stimulated by the injection into the fasting stomach of a weak solution ($\frac{1}{10}$ per cent.) of hydrochloric acid. Two hundred cubic centimetres of this solution are injected into the stomach, allowed to remain half an hour, then withdrawn and tested with reference to their digestive and milk-curdling power. If these are absent, the diagnosis of gastric atrophy is justified.

Studies of the milk-curdling ferment, with a view to determine the diagnostic significance of its presence or absence, have been recently made by JOHNSON, of Stockholm, BOAS, and KLEMPERER, the result of which is that its importance in this respect is but slight. It is agreed that this enzyme is absent in most cases of chronic catarrh of the stomach, in carcinoma, and in atrophy, *i. e.*, in just those affections in which hydrochloric acid is usually absent from the gastric secretions. The fact is that its diagnostic significance is precisely similar to that of hydrochloric acid, upon which it depends for its very existence. The gastric tubules do not secrete the "labenzyme" itself, but a "proënzyme," or "labzymogen," which is converted into the labferment by means of hydrochloric acid.

From the foregoing remarks it is evident that the diagnosis of gastric atrophy, like that of other obscure affections of the stomach, is largely chemical; and although certainty in diagnosis has not yet been attained by such methods, there is good reason to believe that they are surely leading to it.

THE MUNICIPAL AND MEDICAL CARE OF THE POOR.

THE relation between the medical profession and the State has been as fertile a source of discussion as the relations of church and State. "Paternal

governments" subsidize large hospitals and asylums, and support their officers. This is well exemplified by Austria, which receives the woman pregnant with a foundling child, cares for her, and adopts and for a time supports her offspring. However such a policy may be regarded from the standpoint of the moralist, a direct benefit to science results in the collection of vast material for clinical observation available to competent medical scientists whose services to the State are directly recognized.

Under a republic the problem becomes more difficult. The voter is King, even though dependent on his fellow-citizens, and unless criminal is susceptible to government control in a limited degree only. No man can be taken from his dwelling, which is his castle, to a hospital against his will. Clinical material is to be obtained with comparative difficulty, and competition in the control of the sick poor results in establishing dispensaries and hospitals which are private enterprises. This commercialism in medicine is the logical result of the present relations of the profession and the government, municipal or general, and in process of time will undoubtedly be changed.

Medical men interested in science, in medical education, and the good of the community have a duty in improving these conditions which should not be slighted. The functions of the government as a promoter of progress in medical science should be largely supported. Municipal hospitals, infirmaries, and almshouses should be brought to a high standard of excellence, and thus made to coöperate in increasing medical knowledge. While the citizen of a republic may not be as completely in the hands of the State as the monarchist, yet American laws supported by intelligent public opinion exercise a wise and humane control over the poor. This control is best exercised by discrimination regarding the needs of the individual case. The acute and chronic disability should be promptly recognized, and public funds used quite differently in dealing with the two. For the former the hospital is indicated, where proper medical care, aided by the best known appliances, will return the patient to self-support as quickly as possible and at the least expense to the State, having contributed clinical observations to medical science. For the chronic and disabled, a place of abode should be provided where, in proportion to the strength of each, sufficient labor may be performed to reduce the cost of maintenance.

Experience in other cities has shown that a city hospital, as perfectly equipped as possible, and an almshouse and farm, removed a convenient distance from the town, furnish the best method of caring for the poor. The almshouse should have sufficient land for a farm on which inmates may labor in suitable weather. The best interests of science and good government are, in a measure, defeated when a city hospital is allowed to remain so crowded with the chronically disabled as to tax the resources provided for acute cases. Such is now the case with the Philadelphia Hospital, one of the oldest and largest in the country. Under the efforts of the Board of Charities and its medical staff, with its admirable training school for nurses, it has been brought to a high grade of efficiency as a hospital, affording facilities for the scientific treatment of disease and available for medical education. It has labored under the disadvantage of overcrowding by indiscriminate inmates. A move is now on foot to correct this condition by the removal of those suitable to an almshouse, leaving the hospital to continue unimpeded in its growth and development.

A similar experience is not uncommon in American cities, and it is the duty of the profession to join hands with the municipality in mutually furthering medical science and good government.

The United States Commission for the investigation of hog cholera have concluded their labors in Baltimore for the present and have gone to South Carolina. The Commission is composed of three members—Professor Shakespeare, of the University of Pennsylvania, Chairman; Dr. B. M. Bolton, formerly of Johns Hopkins University; and Professor Burrill, of the Botanical Department of the State Agricultural College of Illinois.

The recent news from Hayti shows that the U. S. ship "Yantic" has been ordered home in consequence of yellow fever having boarded her. The "Yantic," being of wood, will hereafter have a very restricted sphere of usefulness. The "Boston," iron cruiser, having been stripped of all her contents, will this week be burned out with sulphur by the barrel. The extent of the fever outbreak on the "Yantic" is not known, but it is believed that she has never been infected hitherto.

The Trustees of the University of Pennsylvania at their meeting held this week transferred Dr. James Tyson from the Chair of General Pathology and Morbid Anatomy to that of Clinical Medicine, and

Dr. John Ashhurst to that of Surgery. The appointments to the vacant Chairs of Pathology and Clinical Surgery will probably be made next month.

AT the annual meeting of the College of Physicians of Philadelphia, held last week, Dr. D. Hayes Agnew was elected President for the current year.

DR. THEOPHILUS PARVIN has been elected President of the Obstetrical Society of Philadelphia.

AT the annual meeting of the Kings County Medical Association, held on the 2d inst., Edward R. Squibb, M.D., was chosen President for the ensuing year. The Association has found permanent quarters at the new Hoagland Laboratory.

THE German government maintains a paternal oversight of the workmen upon the public works. The *Engineering Record*, for the 8th ult., shows that a considerable sanitary control is imposed upon the contractors of the great Northeast Sea Canal, connecting the Baltic with the North Sea, both as to the selection of the workmen and as to their treatment at the works and in the sheds or barracks.

The canal commission is obliged to keep up at the larger sheds a continuous series of instructions in what is termed the "Samaritan Service"—a new but very significant expression—upon which instructions all the laborers may, in turn, be required to attend by the shed-inspectors. A fire-drill, similar to that which is seen on ocean-going steamers, is a part of the scheme. The cost of these lessons is borne by the governmental commission having oversight of the laborers.

In many of the large public works in this country there has been a general disregard of the sanitary rights of the workman; and we know of some instances where the loss of life has been wasteful in the extreme. We commend to our philanthropists and to the "lovers of the workingman," a careful study of this German innovation, "the Samaritan service," as a means of education in presence of mind, self-help, and as a measure conservative of his sanitary rights.

One other salutary provision which exists in this German oversight of the workman, is the exclusion of contagious and unsightly disease from the sheds, and this is accomplished by means of a medical examiner whose decision is final in regard to the admission of all new men upon the works.

THE self-prescriber has already heard of sulphonal and is taking it in the maximum dose in order to produce sleep. He is also recommending it to his friends who cannot sleep, in doses which are not free from danger. The popular use of antipyrin, which has been going on for over a year, has done no little injury; we have known thirty grains to be advised by one layman to another as an initial dose. We predict that the time must soon come, through the multiplication of these potent neurotic medicines, when physicians will insist upon the non-renewal of these potent prescriptions by pharmacists without a written order. It seems to us quite probable that we have simply arrived at the threshold of this department of chemical work, and that the profession will be compelled to throw additional safeguards around the unauthorized use of these powerful agents.

THE educational departments of various governments present reports showing the number of students who matriculate in the colleges, universities, and seminaries. In Germany the number is 24,000; in Great Britain 26,000; in this country 90,000. These figures when compared with the estimated populations of the same countries, enable us to make the following ratios: in Germany there are 53 students in 100,000 inhabitants; in Great Britain there are 46; while in the United States there are not less than 150. The demands of the standing armies of most European nations must shut out a great many male students from advanced collegiate pursuits. Militarism hampers the higher education.

THE death of Dr. Joseph L. Bodine, of Trenton, New Jersey, at the early age of forty-nine, robs the Medical Society of that State of a valuable member. He died January 2d. He was a graduate of the University of Pennsylvania, Class of '65. He had formerly been a Commissioner of the Sinking Fund for New Jersey.

REVIEWS.

A PRACTICAL TEXT-BOOK OF THE DISEASES OF WOMEN. By ARTHUR H. N. LEWERS, M.D. Lond., M.R.C.P. Lond., etc. Crown 8vo. pp. 400. London: H. K. Lewis, 1888.

THE most convenient handbook for the student, or to refresh the memory of the busy practitioner, which we have seen. Thoroughly up to modern knowledge, it contains no superfluous matter, but clinical points of importance are clearly illustrated. Some peculiarities of English practice appear: iodine water is used as an

antiseptic, and the practical value of electricity in treating pelvic exudates and neuralgias is not fully recognized. Modern pathology and operations are concisely stated; instruments are described: symptoms noted; and even the rest cure receives mention. The book is a veritable *multum in parvo*, and of decided utility.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OBSTETRICS AND GYNECOLOGY.

JOSEPH JANVRIN, M.D., CHAIRMAN.

Stated Meeting, December 27, 1888.

DR. JAMES P. TUTTLE reported a

CASE OF EXTRA-UTERINE PREGNANCY IN WHICH THE FŒTUS WAS DELIVERED AT FOUR MONTHS PER RECTUM.

There is no subject of greater interest now before the profession, he said, than the diagnosis and management of ectopic gestation, and aside from its unusual termination, the case in question would, he thought, suggest some of the difficulties, not to say impossibilties of diagnosis, and would seem to illustrate the complications of certain methods of treatment advocated at the present day:

The patient was a lady thirty-five years of age, who had been married eleven years, but never was pregnant. For several years she had been treated by various methods for "falling of the womb." The menses had been generally regular, but several times had been delayed or omitted, without causing any inconvenience. Dr. Tuttle was called to see her on March 26, 1888. Her last two periods occurred about the proper time, though the flow was less free and of shorter duration than usual. She missed entirely her period due on March 13th, a circumstance which she attributed to exposure to the blizzard-weather of that date. She had always had a delicate stomach, and for some time past she had been troubled with nausea and loss of appetite.

Digital examinations showed the uterus to be slightly enlarged, well down, and apparently retroverted, or with posterior mural fibroid. The use of the sound was contra-indicated on account of the possible existence of pregnancy. There were great periuterine tenderness and great heat about the parts. The right ovary could be made out with difficulty, but was found to be enlarged and tender. The left could not be felt. The diagnosis made was pelvic cellulitis and ovaritis of right side; possible pregnancy.

Tho days later he saw the patient during a paroxysm of pain which was referred entirely to the rectum. It was due apparently to a spasm of the sphincter of that organ, and was promptly relieved by cold applications, and lifting up digitally what he supposed to be a large retroflexed and gravid uterus. An examination under anæsthesia was refused, and the patient, who was not disposed to accept the theory that she was pregnant, requested that she should be treated with electricity, which she said had been formerly successfully used in her uterine troubles. Believing that this was not the proper method to be pursued in the case, he surrendered her to an electro-therapeutist of the eclectic school, who had treated her before.

On April 23d, Dr. Tuttle was again requested to take charge of the case. The patient was then very weak, and unable to retain anything on her stomach. Pulse 120, temperature 101°. As the instruments used in the electrical treatment had been passed within the uterus, the diagnosis of pregnancy had been disposed of. She said she was still flowing from a menstrual period which had come on after an electrical *seance* several days before, and therefore an examination was deferred until a later date. He afterward learned that after this *seance* she had had a severe hemorrhage, lasting for several hours. At the time, she told him that she had had a severe and painful menstrual period lasting six days, during which she had passed large pieces of black blood, and leaving a slight flow, which still continued. Altogether the flow lasted six weeks, and this led him to believe that an abortion had been produced, and an islet of placenta left adherent.

Two days later the patient was in a much better general condition, and an examination was made, revealing the following condition: Continued vaginal heat and tenderness in peri-uterine pelvic tissues, uterus enlarged to five inches. slightly movable, in fair position, inclined somewhat to the right side. A large, round, hard tumor was between the uterus and rectum, not particularly painful on manipulation; closely attached to the uterus and movable with the latter, and to about the same extent. It presented the symptoms and feeling of a fibroid or possibly a hæmatoma.

The hot douche, boroglyceride tampons, and general constitutional remedies were employed for some weeks with fairly good results, and the patient believed that she was getting well. In spite of Dr. Tuttle's protests, she continued to attend to household duties, going to market, etc., and even furnishing a new flat, to which she moved during this time. On June 1st, his note was as follows: Has had continued slight flow of blood from uterus for past three weeks, in spite of local application of astringents, and administration of ergot and gallic acid. The dull curette does not find any vegetations, and the lining is smooth. Tumor does not seem to grow in size, but is sagging down in sacral fossa, causing retroversion and difficulty in stools, due to pressure on rectum, and commencing hemorrhoids. Injected ʒss ferri sulph. into cavity of uterus, and several large tampons inserted during the knee-breast position, with the idea of raising the tumor, if possible, above the pelvic brim.

The hemorrhage finally ceased altogether, and on June 25th he found that the tumor had sunken considerably lower and presented sensations of slight softening or breaking down. He proposed to put an aspirating needle into it in a day or two, but the next day he was hastily summoned to the house. where he found Dr. Harvie Dew engaged in delivering a fœtus from the rectum of the patient; severe griping and intense pain having followed the use of a cathartic the night before. He had been called after the feet had presented at the anus, and the delivery was accomplished without difficulty. The rent in the wall of the rectum was perpendicular in direction, and as straight and clean-cut as if done with a knife. It was two and a quarter inches in length, and located on the left posterior aspect of the gut about two or two and a half inches from the anus. The

cord was intact, but was atrophied and became detached from the placenta by the slight traction required in using it as a guide in reaching the latter. The placenta not following the child, the patient was etherized and an attempt made to remove it. It was firmly adherent, however, and the little manipulation ventured upon brought on arterial hemorrhage to such an extent that it was decided that it would be unwise to use any force on account of the weak condition of the patient. The cavity was therefore tamponed in the hope that the placenta would attach itself, or degenerate and come away gradually. By the time this had been accomplished the patient had an alarming failure of respiration, and artificial respiration had to be resorted to to keep her alive. Under hypodermatic injections of stimulants, hot packs, etc., she revived, and in the course of two or three hours was feeling quite comfortable, with a temperature of 99°, and pulse 140.

The patient continued very weak but suffered little pain. On June 28th the placenta was found plugged tightly in the rent; but the slight attempt to remove it brought on a condition of extreme shock, and it was decided not to interfere with it in her present state. About 7 A. M., on July 1st, she complained of a sinking sensation, and had Dr. Tuttle summoned. On reaching the bedside he at once recognized that she was sinking from hemorrhage, although he found the placenta still plugged into the rent in the rectal wall, and no blood was escaping into the rectum. All efforts to save her failed, and she died in about an hour. As her last request was that no autopsy should be made, the attachment of the placenta remained uncertain, but he thought it probable that it was to the left tube or ovary, from the absence of the latter in its accustomed place, and from the position of the placenta to the left of the median line.

It was to be observed, he said, that the patient had no definite symptoms of rupture of the tube or hemorrhage therefrom, while she was under his care. He, therefore, judged that the cyst containing the child had probably burst into the cavity or folds of the broad ligament, as in some cases mentioned by Lawson Tait; and believed that but for the severe straining produced by her self-inflicted catharsis, it would have proceeded to the usual result in such cases, viz.: decomposition, abscess formation, and its concomitant constitutional symptoms, rupture, and discharge through the rectum or vagina. It was also noticeable that there were never any of those colicky pains usually met with in ectopic gestation, and that the symptoms of pregnancy had almost totally disappeared when she came into his hands a second time. In fact, the symptoms after this were those of a simple uterine fibroid or hæmatoma, indicating that the death of the fœtus had taken place before this time; and it was his opinion that this had been brought about by the electrical treatment employed. The case was of interest, he thought, therefore, as illustrating the dangers of electricity in extra-uterine pregnancy (which had been so long advised by some of the best gynecologists), and the darkness in which we were afterward left. The fœtus was in a good, but not perfect state of preservation; and Dr. Tuttle said that while numerous instances are on record of disintegrated fœtuses being delivered out of abscess sacs through the rectum or vagina, he had failed to find in the literature of the subject a single case in which, as here, the delivery of the fœtus occurred intact.

DR. R. A. MURRAY presented

SPECIMENS FROM A CASE OF HÆMATOMA OF BOTH OVARIES.

In this case extra-uterine pregnancy was suspected; but no evidences of its existence could be detected. Pyosalpinx was found in addition to hæmatoma, in connection with one of the ovaries.

DR. HENRY C. COE read a paper on

THE IMMEDIATE APPLICATION OF FORCEPS TO THE AFTER-COMING HEAD IN CASES OF VERSION WITH PARTIAL DILATATION OF THE OS.

He said he desired to call attention to a single condition in which the forceps should be at once used in cases of version, and would not be understood as advising their general use after version, or even the immediate delivery of the child. The following illustrative cases were cited:

CASE I.—Primipara, æt. thirty-five, slight contraction of the anterior conjugate. Labor induced near term from albuminuria and threatened eclampsia. The patient was very anxious for a living child. The head was grasped by the cervix, and could not be extracted until the forceps were applied; when it was readily delivered, but too late to save the child. The perineum was torn through the sphincter, but healed with primary suture.

CASE II.—Multipara, æt. thirty-five. Several dead children had been previously delivered by forceps applied high up, and she greatly desired to have a living child. There was slight narrowing of the anterior conjugate diameter. Version was performed; the head being arrested by the partly dilated cervix. The forceps were applied after vain attempts at manual extraction, and the child rapidly delivered; but it could not be resuscitated. In this case there was no laceration of the perineum.

CASE III.—Primipara, æt. sixteen. There was great rigidity of the soft parts. Eclampsia of unusually severe type occurred, and labor was induced. Version was performed, and the head was arrested, as in the previous case. Considerable time was wasted in manual extraction, and it was finally delivered with the forceps. The child was dead. Laceration nearly through the sphincter; healed with primary suture.

CASE IV.—Multipara, æt. thirty-eight. Hydramnios and fatty heart. Labor was induced near term. Atony of the uterus and serious cardiac disturbance occurred, and the fœtal heart was irregular in action. Version was resorted to. The head was grasped by the cervix, and the forceps were applied after a loss of several minutes. The head was large and unyielding, and the fontanelles were found to be nearly closed. The child was resuscitated, but died in convulsions a few hours later. There was a superficial tear of the perineum.

In each case the mother made a perfect recovery. From the results met with in these cases Dr. Coe inferred that many children might be saved under such circumstances by immediate application of the forceps. The reduction of infant mortality, he said, was especially important in private practice, and it was just the class of patients in whom we were obliged to perform version and extraction, who were most anxious to have living children. We must not allow our ideas as to the small importance of the child's life, imbibed in our hospital service, to influence us in private cases.

The application of the forceps did not present special difficulties. The perineum might be badly torn, or the cervix might be lacerated, in consequence of the rapid delivery; but patients would gladly overlook such lesions if the child's life was saved by the physician's prompt action, especially if former children had not survived. In conclusion, he called attention to the fact that in the cases reported (two of which were in private practice), the operator had had skilled assistants and nurses, who possessed experience in this class of cases; and yet had been unsuccessful. Under similar circumstances he would not lose a moment in attempts at manual extraction; but would apply the forceps as soon as he recognized the fact that the constricting cervix did not yield.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, December 12, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. JOHN H. PACKARD read a paper on

NOTES OF A SUCCESSFUL CASE OF LAPAROTOMY FOR INJURY BY A CIRCULAR SAW.

Charles B., aged twelve, was brought to the Pennsylvania Hospital, September 24, 1888, having fallen against a circular saw in rapid motion. The accident occurred about one mile from the hospital. On admission, the ascending colon and about two feet of the small intestine were protruding from a wound four inches or more in length, nearly vertical, on the right side of the belly, some two inches from the middle line. The mass was tightly grasped in the wound, so that access of air to the peritoneal cavity was prevented. The boy was in a condition of marked but not excessive collapse. He was etherized, and the parts antiseptically cleansed. The bowel was then carefully examined. Three wounds of the intestinal wall were detected; one involving the entire thickness, the other two the peritoneal coat only. At several points the omentum had been wounded, and the mesentery was cut in two places. The boy's woollen clothing had been torn by the teeth of the saw, and a great many minute shreds of the stuff deposited on the surface of the protruded mass. The three intestinal wounds were carefully sutured with very fine silk, after the method of Lembert. All the bleeding points were secured with fine carbolized catgut. Some ragged portions of omentum were similarly tied and cut off. Attention was next given to the cleansing of the peritoneal surface from all the bits of woollen threads deposited on it; a very tedious process, occupying more time than any other part of the operation.

In order to return the protruded mass it was necessary to enlarge the wound somewhat; after which reduction was accomplished without difficulty. After irrigation of the peritoneal cavity, the edges of the wound were brought together with silkworm-gut sutures, secured by shot. A glass drainage tube with a closed and rounded end was inserted, and the usual antiseptic dressings applied, with a flannel bandage over all. Every two hours the cotton rope filling the tube was removed, and suction was made with a hard-rubber syringe with a long nozzle, so as to prevent any accumulation of secretions.

Reaction took place very favorably; the boy had only very slight pain, but some nausea and vomiting, which continued all next day, subsiding toward evening. A free movement of the bowels occurred, and he learned later that an attendant, just after the boy's admission, had given him by mistake ten grains of blue mass, intended for another patient. As soon as the stomach became quiet, the administration of prepared milk and beef-tea, alternately every two hours, was begun. On the fourth day there was only a slight yellowish discharge from the tube. On the fifth day the glass tube was removed, and a soft-rubber one substituted for it. Solid food (milk toast) was given, and on the sixth day he ate an egg and some chicken-broth.

A day or two after this the tube was removed, and a few days later the sutures. For some two weeks after this the boy was kept in bed; he was allowed first to sit up in bed, and then to get up and walk about.

After the spontaneous movement of the bowels on the second day, an enema of turpentine and sweet oil was administered about every third day until his dismissal.

On October 31st, thirty-seven days after the injury, he walked into the clinic-room; and on November 12th he was discharged, with directions to wear a binder for some time, and to report before dispensing with it.

Certain features of this case may be briefly commented upon. The boy's youth was, of course, in his favor. He was stout and healthy, although his surroundings had not been, by any means, hygienic. But there was one circumstance of special advantage—the fact that the protruded mass quite filled up and plugged the wound in the abdominal wall. Besides this, the wounds were all of small extent, and no large vessels were divided. The presence of the almost innumerable shreds of soiled woollen clothing on the peritoneal surface was of course an element of danger, only to be set aside by the utmost care and patience in their detection and removal.

DR. JOSEPH PRICE said that the fact that the protruding intestine completely closed the wound had a great deal to do with the successful result in this case. We know that undue manipulation and prolonged and needless exposure of intestine are frequent causes of shock and death; this fact is beautifully illustrated in needlessly prolonged operations. He never could understand the vicious do-nothing policy of ambulance surgeons in these cases of abdominal incised wounds. The ambulance surgeon should be prepared and instructed to act promptly in such accidents. Promptitude is everything. A pitcher of warm water and a few threads might save lives that are lost by carrying the patient untreated, with the intestines exposed, covered by filthy clothing, to the distant hospital, there to wait for the chief to arrive before anything is done. He recently read of a case of a man who was accidentally eviscerated while hunting alone in the backwoods. Some one found him with the intestines protruding and covered with dirt, and carried him to the nearest brook, washed and sewed him up. He was also fortunate in *being away from opium* and from meddlesome nurses and officious residents of a general hospital, and he recovered. The strictest simplicity, absence of opium and of milk, indeed of all food till the patient asks for it, except in greatly exhausted cases demanding early support or stimulation, will give the happiest results. He gives plenty of fluids, toast water, barley water, stimulating enemata of beef-tea, with, perhaps, a little whiskey if needed, and enemata of water to relieve thirst. We

know how difficult it is to prevent hemorrhage in ether-nausea. Careful preparation for the operation by the free use of salines will minimize the ether and bowel disturbance. He is satisfied that the free use of the salines is of greater importance *before* operation than after in abdominal work. The unintentional administration of blue mass in this case of Dr. Packard's was a happy accident and helped recovery. He wished particularly to congratulate Dr. Packard upon the excellence of the toilet, the care to secure perfect cleanliness under such difficult conditions, and the perfect drainage. The careful removal of all foreign material from the bowel, free irrigation, and perfect glass drainage in two desperate cases have given him a triumph in two cases of abdominal work.

DR. PACKARD desired to say a word in reply to Dr. Price in defence of opium. If we remove a tumor all goes well until water is injected into the abdomen. Pain ensues immediately. We give a grain of the extract of opium by the rectum, when the pain disappears the patient goes to sleep and wakes in comfort. Are we not justified in attributing this to the opium, and relying on the same measure in similar cases? Of course, it would be a great mistake to treat all cases of peritonitis with opium. The saline treatment is proper in suitable cases, and saves many lives. So may we say of opium in suitable cases. The error is in exclusiveness, whether in the one direction or the other. We must use our judgment in individual cases, and prescribe in view of all the conditions present. In this case he thought nothing would have served his patient as the one grain of the extract of opium did. It was not a case of peritonitis however, and he did not so regard it. But suppose some enthusiast in salines had ticketed the case peritonitis and immediately administered purges, he hardly thought such prompt relief would have been afforded. He would like, while on this subject, to mention a measure which he had employed for many years, and which has repeatedly seemed to him to avert threatened peritonitis, and that is the application of a dozen leeches to the abdomen. After operation for stone especially, as well as in other cases of traumatism, marked benefit has been derived from the adoption of this plan.

NEWS ITEMS.

The German Imperial Health Office.—The Government proposes a change in this office for the coming year, rendered necessary by the increased amount of statistical work required of it. The proposed change is in the direction of the institution of a new department for the carrying on of this work. All other departments will remain as before, with the exception of the changes in the mere *personnel* of the staff, and are estimated to cost for the year, in round numbers, about 135,000 marks.

Only one of the original ordinary members of the office, which was founded thirteen years ago, still remains at his post, viz., Prof. Sell, the director of the department relating to the chemical investigation of foods. All the other posts have undergone changes as to their incumbents. After several changes, the post of hygiene was occupied by Dr. Renk. When Prof. Robert Koch took over the chair of hygiene at the University, he still retained a seat on the board in the allied department of epidemiology and bacteriology, and as ordinary member for hygiene came his pupil, Dr. Gaffky, who has since been translated to Giessen as professor of that branch of science. His post in the health office is not yet filled up, but the duties are temporarily performed by Dr. Petri, the former assistant of Koch, and curator of the hygienic museum. It is expected that he will be promoted definitely to the post he now fills provisionally, and that his place in the musenm will be filled by the appointment of Dr. Erwin von Esmarch, a son of the celebrated Kiel professor of surgery.—*Medical Press*, December 19, 1888.

Proposed Inoculation for Yellow Fever.—A press telegram states that DR. PAUL GIBIER, of Paris, who some years ago, in Spain, inoculated himself and others with the germs of cholera then raging there, the inoculation proving successful, will offer his services to the United States Government to establish an experimental station for treating yellow fever.

Dr. Gibier, in discussing his plans, is reported to have said: "I think a safe method of inoculation and care of human beings will result in the prevention of yellow fever. If the Governmnut desires it, I shall offer my services to establish a laboratory on one of the keys off the Florida coast, and, getting fresh matter from Havana or Key West, stock my island with monkeys, and spend a year, if necessary, perfecting a method of treatment of the fever. I shall report what I have done so far to the medical societies here and in Washington."

The Memorial to the British Medical Association.—*The Medical Press*, December 19, 1888, states that it understands that a private meeting of the signatories to the memorial recently presented to the President and Council of the British Medical Association took place recently, to consider the reply of the Council thereto. A large number of influential members were present, and although being a private meeting, it is not at liberty to divulge the details of the proceedings, it may be stated that it was generally felt that the *Journal* was not conducted in such a manner as to raise the moral tone of the profession, but, on the contrary, it was subverted to favor the interests of those whose line of action does not accord with the views of right-thinking men. It was urged that the Association expended a large sum of money annually on the *Journal*, and was under an obligation to exercise a strict surveillance on its management. It would seem that the dissentients are not disposed to rest satisfied with their abortive protest, and the futher evolution of the movement is awaited with interest and curiosity.

The Mortality on the Panama Isthmus.—The tribute of valuable lives paid to the insalubrity of the Panama isthmus (says *Engineering*) has been very heavy. M. A. Nichols, who had the organization of the sanitary measures for the protection of the workmen, states that amongst the European element there have been 5200 deaths during a period of two years and three months, the burials averaging about seven per day, and the death-rate being 98 per 1000 In one station, amongst 159 young men specially selected for their physical vigor, 23 have died within twenty-two months. Amongst the colored workmen the loss has not been anything like so

heavy, only 51 having died out of 2100 during the period considered.—*Lancet*, December 22, 1888.

Disinfection of Surgeons' Hands.—A great deal has recently been said about surgeons' nails and nail-brushes in hospital wards. Bacteriologists have come to the conclusion that the usual washing of the hands with weak antiseptics is quite efficacious in killing pyogenic and specific germs on the hands, but does not destroy micro-organisms which lodge under the nails. Dr. Fürbringer, of Berlin, believes in washing the hands with soap, then with alcohol at 80° F., then in a sublimate solution. The alcohol is said to soak well into the nails. Drs. Roux and Reynès have tried experiments with alcohol on nails purposely infected. In forty cases in which the infection was experimental, and carried on in the laboratory, asepsis was proved in thirty-three. In eight cases in which infection was clinical, the hands being washed in the usual manner after touching infected fluids, only four were proved aseptic after the above elaborate system of washing. Drs. Roux and Reynès nevertheless advocate this antiseptic ablution, noting that the nails are seldom so thoroughly rubbed after every operation as when an experienced physiologist cleans them after some special experiment. In all cases of enforced sanitary measures routine practices and habits must be taken into account. —*British Med. Journ.*, December 22, 1888.

Danger in the Postage Stamp.—The *Sanitary News* calls attention to the fact that a postage stamp may in various ways convey contagion. One of the simplest and most plausible, is that in which a postage stamp, partly attached to a letter to pay return postage, is sent by a person infected with some disease to another person. The disease is transferred in the first place to the adhesive stamp through the saliva, and in being attached to the letter by the receiver the poison may be transmitted to him in turn through the saliva. Another cause may be the infection of the stamp with disease germs. That this is true can be proven very simply by a microscopical examination.

We often see persons holding change for a moment in the mouth, probably not knowing that investigation has shown that disease germs can be carried by money. If they could see through what hands the money has passed, they would hesitate before using such a third hand. Silver money is as bad as paper money, but while many would hesitate to hold a dirty bank note in their mouth, they think that a silver piece, because bright, is apparently clean.

Photography of the Male Bladder.—According to the *British Medical Journal*, December 22, 1888, Mr. Hurry Fenwick and Mr. Pearson Cooper, of the London Camera Club, have been working for some considerable time at photography of the human bladder. Various obstacles were in turn recognized and overcome, and they have now so far perfected their vesical camera and method as to obtain good negatives of the interior of "dummy" and dead bladders. They hope before very long to describe a method of recording the appearances and progress of diseases of the living bladder. The negatives are taken *per urethram* through a tube of 23 French calibre (11 or 12 English).

Executions by Electricity.—It is reported that it is not unlikely that at the present session of the New York Legislature the law, which went into effect the first day of the year, providing for the execution of murderers by electricity, will be repealed, or the time extended for its going into effect. It is not altogether sure that executions by electricity can be made without pain or mutilation. Electricians are divided on the subject, and the majority seem to be opposed to the law. It is noticeable that every electrical journal opposes the electrical method of execution as inexpedient and inhuman, and in a recent address Professor Brockett, of Princeton College, spoke of execution by electricity as an outrageous thing and the degrading of a noble agent to an ignoble use.

But though the practicability of electricity as a substitute for hanging is thus thrown in doubt, the other provisions of the law passed last year ought to remain. The most important of them are the requirements that all executions shall be in private, at an hour only known to the Sheriff, and that there shall be no publication of the details of the event. There will probably be fewer murders when it becomes known that the criminal condemned to die shall be led to execution at an unknown hour and then put to death in the presence of only legal witnesses, and the fact of his execution made known to the world only by a brief paragraph in the papers. But electricians should be agreed as to the advantage of using electricity as the legal method of executing murderers, before the method is actually applied.

Counterfeiting Mellin's Food.—A druggist was arrested in Philadelphia last week, at the instance of the Dolibier-Goodale Company, charged with swindling and obtaining money under false pretences by selling as Mellin's food a spurious compound of his own manufacture under their name and registered trade mark. He confessed his guilt and in default of bail was committed to the County Prison. It is reported that this arrest will be followed by others, as the parties in interest are determined to follow up with rigor and prosecute all who are found to tamper with their labels and goods

Post-graduate Instruction in London.—The popularity and, it may be assumed, usefulness of post-graduate instruction has recently been proved to be beyond question in London, as well as in other large centres of medical learning. But so far, in the former case, only a limited field for the work has been available. One hospital only in the metropolis has been engaged in the organization of a post-graduate course, and it has probably been the success of this which has prompted the suggestion of the scheme which is now in process of elaboration. The scheme consists of seeking the cohesion of six hospitals with their staffs in London, with the object of laying open for post-graduate purposes the large number of seven hundred and sixty beds. The hospitals, in detail, are composed of one general, one for diseases of the eye, of the skin, of the nervous system, of women, and lastly, of children. The members of the staffs of these six institutions would be required to deliver lectures at some central situation, such as the Examination Hall upon the Embankment, at stated intervals, and give clinical instruction in the wards and out-patient rooms to the post-graduate students. We understand that the scheme has been submitted to the various hospitals here referred to, and meetings have

been held to discuss the matter.—*Medical Press*, December 12, 1888.

Sir Morell Mackenzie in Edinburgh.—Sir Morell Mackenzie in the early part of this month gave two lectures in Edinburgh, on the first day to the members of the Edinburgh Philosophical Institution in the Music Hall, on "Speech and Song," and on the second, to the students of Edinburgh University, in the U. P. Synod Hall, on "The Relation of Culture to Professional Success." Both lectures were well attended, and from the students Sir Morell had a most enthusiastic reception, and was presented by them with an illuminated address. Mr. J. R. Findley acted as chairman at the Music Hall, and Professor Campbell Frazer, Dean of the Faculty of Arts, at the students meeting. It is certainly a significant fact that Sir Morell was not accompanied to the platform on either occasion by any of the prominent medical men of Edinburgh. This might have passed without particular comment, had not the daily papers taken up the subject, and roundly abused the medical profession for their conduct toward the lecturer.—*Medical Press*, December 12, 1888.

The Limits of Professional Secrecy.—Professional secrecy has attained a degree of refinement and comprehensiveness in France which must seem strained to medical men who have before now found themselves obliged to reveal such details and information as an indiscreet counsel may take upon himself to require. Quite recently a very knotty question has suggested itself, and as it applies as much in this country as in France, it may be worth while to take cognizance of it. Is a medical man justified in remaining silent when his doing so may prove detrimental to a large number of persons?

The particular case which gave rise to the discussion was that of a lady living in one of the large houses let out in flats, who suddenly developed smallpox. It was ascertained that the porter, who had been ill for some time previously, was himself suffering from this disease. His condition had been purposely kept secret by the medical man in attendance on the ground that a breach of confidence would expose him to the penal clauses of the law which recognizes, and, if need be, enforces the reticence of medical men in respect of matters appertaining to their profession. From the French point of view, the doctor's duty would be limited to advising the patient to give the necessary warning, but in this country the medical man would probably be considered justified in taking the matter into his own hands rather than expose a whole category of persons to the risk of contagion.

As a general principle, the reticence of a medical man in all that concerns his relations with his patients is one which is in the highest degree commendable, but occasions may, and occasionally do, arise, in which the duty of the doctor to society at large must over-ride his duty to his patient. The notification of infectious diseases would probably fall within this category were it not that the object in view can better be attained by casting the responsibility of making the notification on the householder, merely obliging the medical attendant to give formal notice to his patient or patient's friends. The great point is that the plea of ignorance was not admitted as a valid excuse for non-notification.—*Medical Press*, December 12, 1888.

Bacteriology of Snow.—While the bacteriology of ice and hailstones has been studied with considerable success by Drs. Fränkel, Bischoff, Mitchell Prudden, Pumpley, Hills, Stoben, A. V. Poehl, Bordone-Ufreduzzi, Bujwid, etc., that of snow has been up to the present almost wholly neglected. Even in Russia the subject has been touched only in a cursory way by PROF. A. V. POEHL in a paper on "The Water-supply of St. Petersburg," in the *Vratch*, Nos. 8 and 9, 1884, p. 119. In it he points out: 1, that snow always contains viable microbes liquefying gelatine; 2, that, when snow falls, the first portions invariably contain greater numbers of bacteria than the subsequent ones (for example, 8324 per 1 cubic centimetre of snow-water against 3380 several hours later); 3, that, when snow lies on the ground, the superficial layers become richer in microbes (for example, 780 just after the fall, against 962 about three hours later). The fact is of interest from a sanitary point of view, as Dr. Poehl's researches furnish an additional proof that exposure of microbes to low temperatures does not destroy their vitality; at least, in certain species of microorganisms. In many countries, such as Russia or Sweden, snow forms, so to speak, a natural ground or soil during several months of the year, receiving excrementitious matter and every possible kind of refuse and filth. In spring, when the snow melts, it is imbibed by the soil, carrying with it all the polluting matters referred to. Hence an interesting question arises: Are such microbes as happen to be present in these matters in any way changed by their contact with snow, or not? This point can be determined only by further bacterioscopic researches.

A contribution to the subject has just been published in the *Vratch*, No. 37, 1888, p. 727, by DR. F. G. IANOVSKY, of Kiev, who has examined bacterioscopically, under Prof. K. G. Tritshel's guidance, a February snow in its purest state, collected both immediately and from one to three days after its fall. This observer has found: 1. That even when collected during its fall, snow is invariably found to contain living bacteria in considerable numbers, varying from 34 to 463 per one cubic centimetre of snow-water. 2. That their number does not decrease from exposure of snow to low temperatures (—16° C.) for several days. 3. That the following three species of microbes are met with constantly in great numbers: *a*, a large diplococcus composed of ovoid cocci, endowed with energetic motion, and characterized by its rapidly liquefying jelly; the test-tube culture on the third day, forming greenish colonies along the track of the needle, assumes the shape of a funnel-like sac with a whitish flocculent deposit, while on the fifth, the whole medium becomes liquefied, the precipitate sinking to the bottom; on agar a pale grayish-white streak is formed at the site of inoculation, on potato a fairly thick white film; *b*, small-sized cocci often arranged two and two, energetically mobile, and slowly growing on jelly without liquefying the medium, the growth proceeding solely along the track of the needle in the shape of a narrow stripe consisting of non-coalescing minute points of a yellow color, while on the surface the colony is seen as a grayish-white, circular, slightly prominent patch with somewhat fringed edges; on agar the coccus forms a white streak with sinuous edges, on potato a gray film with a brownish tint; *c*, very large cocci liquefying jelly as late as three weeks after inoculation, and growing

along the track of the needle in the form of a sharply defined streak of a beautiful pink color, with a slightly elevated pink circular patch or "cap" on the surface; on agar the microbe forms a freely spreading white film with a rosy tint, on potato a thick, tallow-like, pink coat with sharply defined fringed contours. 4. That the first two species (*a* and *b*) are also met with commonly in the water of the river Dnieper, which flows through the town (*vide* Dr. Ianovsky's bacterioscopic examination of the water, published in the *Meditzinskiĕ Obozreniĕ*, Nos. 9 and 10, 1888, p. 975), while the peculiar pink micrococcus seems to occur only in snow. 5. That, generally speaking, the microbes liquefying jelly in falling or recently fallen snow are met with invariably in far greater numbers than in snow which has been on the ground for some time; this, in fact, very often contains only such bacteria as do not liquefy gelatine. 6. That the bacteria of snow originate partly from aqueous vapors which are transformed into snow, partly and chiefly from the air; that is, they are carried away by the snow-flakes on their passage through the atmosphere. — *British Medical Journal*, December 15, 1888.

The Electric Light in Land Warfare.—The *Daily News* states that recently some interesting experiments were made on Hampstead Heath for the purpose of testing the capacity of small electric hand-lamps in searching for the wounded men left after a battle, and thus more rapidly than hitherto bringing the sufferers within reach of surgical aid. The experiments were made by the officers and men of the London Division of the Volunteer Medical Staff Corps, an organization which consists of four efficient companies, largely composed of medical students, and in which a fifth company is now in process of formation. The corps, under Surgeon-Commandant Norton, accompanied by ambulance wagons, and provided with stretchers, halted upon one of the Heath roads at a time when the thick mist hung heavily upon the lower grounds; and having established a dressing-station in a rather dreary-looking spot, poorly sheltered by bare trees, sent out its searching stretcher parties to pick up the bandsmen who had been distributed over the open ground at some distance off, to simulate the wounded left from a fight during the daylight. By the aid of the lamps thus brought into such a use for the first time, the men sought were found with comparative rapidity, and the stretcher detachment were guided back to the collecting station by electric lights at the wagons. The results achieved indicate sufficiently well that the electric light thus used would be of immense value, and tend greatly to reduce the suffering of men left upon the field at the close of a fight.—*Medical Press*, December 19, 1888.

The Influence of Parents' Age upon the Vitality of Children.—MR. JOSEF KÖRÖSI, Director of the Hungarian Statistical Bureau, read a paper upon this subject at the last meeting of the Hungarian Academy of Science, in which he gave the following observations, deduced from 24,000 cases:

Children of fathers under twenty-five are of a weak constitution; children of fathers whose age is between twenty-five and forty years are the strongest, while the offspring of fathers over forty are also weak. The offspring of a mother before her thirty-fifth year are the healthiest; those borne between her thirty-fifth and fortieth year are eight per cent., and those born after her fortieth year ten per cent. weaker. Children of old fathers and younger mothers are generally strong, while those of parents of equal age are somewhat weaker.—*Deutsche med. Wochenschrift*, Dec. 13, 1888.

Professor Roser.—The death is announced of Professor Roser, the eminent surgeon at the age of seventy-one, from the effects of an apoplectic seizure. The deceased had been for many years one of the leading members of the medical faculty at Marburg University, and was the author of several important works, among which may be mentioned *Handbuch der anatomischen Chirurgie* and *Eléments de Pathologie der chirurgicale spéciale et de Médecine opératoire* translated by Culmann and Sengel.—*Lancet*, December 22, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 1 TO JANUARY 7, 1889.

WATERS, WILLIAM E, *Major and Surgeon.*—Leave of absence granted in S. O. No. 129, November 9, 1888, Department of the Columbia, is extended one month.—Par 9, *S. O. No. 2, A. G. O.* January 3, 1889.

By direction of the Acting Secretary of War, FRED. C. AINSWORTH, *Captain and Assistant Surgeon*, will proceed to New York City, and Brooklyn, N. Y., on business connected with the Medical Department.—Par. 20, *S. O. 302, A. G. O, Washington*, December 29, 1888.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING DECEMBER 22, 1888.

HAMILTON, JOHN B, *Supervising Surgeon-General.*—Granted leave of absence for sixty days, December 20, 1888.

BAILHACHE, P. H., *Surgeon.*—To inspect unserviceable property at New York Marine Hospital, December 17, 1888.

WYMAN, WALTER, *Surgeon.*—To proceed to New York City and transfer public property, December 15, 1888.

CARTER, H. R, *Passed Assistant Surgeon.*—Granted leave of absence for fifteen days, December 10, 1888.

MAGRUDER, G. M., *Assistant Surgeon.*—Upon expiration of leave of absence, to proceed to New Orleans, La., for temporary duty, December 21, 1888.

COBB, J. O., *Assistant Surgeon.*—Leave of absence extended ten days, December 14, 1888. To proceed to Evansville, Ind., for temporary duty, December 20, 1888.

STONER, J. B., *Assistant Surgeon.*—When relieved, to proceed to New York City, for duty, December 13. 1888.

GEDDINGS, H. D, *Assistant Surgeon.*—Upon expiration of leave of absence, to proceed to New York City, for temporary duty, December 21, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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ORIGINAL ARTICLES.

A STUDY OF THE CLIMATE OF COLORADO AS APPLIED TO THE ARREST AND CURE OF PULMONARY DISEASE.[1]

BY SAMUEL A. FISK, M.D.,

PRESIDENT OF THE COLORADO STATE MEDICAL SOCIETY, PROFESSOR IN THE UNIVERSITY OF DENVER.

IN the presentation of this subject I shall not attempt to argue the question of the advantages of a high altitude over those of a low, nor to extol the virtues of a cool climate as opposed to a warm, nor yet to praise dryness as contrasted with moisture. I shall accept the fact that the climate of Colorado is characterized by elevation and dryness, and it is essentially a cool climate, and on that basis will it be my endeavor to describe its several qualities, faithfully and impartially; to be eyes and ears for the reader, to be the observer in his stead, and, in so far as I am able, not only to state its good qualities, but its bad, so that I may be free from the charge, so often laid at our door, of being *ex-parte* in our writings, and of at least suppressing the truth even if we make no misstatements.

In selecting this subject for presentation, I am aware that I may lay myself open to the charge of offering nothing new; but so convinced am I of the merits of the Colorado climate, so many cures have I seen wrought in it, during my eight years of experience, and so efficacious do I believe it to be in the arrest or cure of pulmonary disease—in many of its forms—that I cannot refrain from adding my voice to those who are proclaiming its virtues, until, by sounding its praise so long and so loud, we may compel the world to hear.

"What do we mean by climate?" is the very pertinent question which Dr. Burney Yeo asks at the opening of his work on that subject; and he answers it by saying: "We generally mean by a question of this kind that we desire to know how the natural conditions and surroundings of a particular place affect the life and well-being of its human inhabitants." These conditions are the nature of its atmosphere, or aërial cloak, and the nature of its surface.

Let me speak of the latter condition first. The State of Colorado embraces a territory between seven meridians east and west, and four parallels north and south—that is, it is 380 miles long and 280 broad, having an area of 103,925 square miles, a superficies which is considerably more than double that of the State of New York, thirteen times that of Massachusetts, and twice that of England. The southern border of this tract corresponds in distance from the equator to Old Point Comfort, while its northern border equals Yonkers on the Hudson. Its most densely inhabited portion, however, corresponds very nearly to the space between Fredericksburg on the south and Philadelphia on the north, while its principal city (Denver) has the latitude of Baltimore in this country, or of Lisbon in the old world.

It is evident that in speaking of a climate of so vast a tract of country one can only mention the prevailing characteristics, and that considerable allowance must be made for deviations from that which is accepted as the standard. Through the centre of Colorado, running north and south, the Rocky Mountain range extends, its water-shed on the east emptying into the Mississippi River, by means of two small tributaries, the south branch of the South Platte in the north and the Arkansas in the south, streams which can easily be forded, and in summer time are so shallow, especially the Platte, that one can wade them without wetting the knee. The flow from the western water-shed is into the Pacific, through the Colorado River, while to the south a small portion of the State drains into the Gulf of Mexico by means of the Rio Grande.

I have spoken of these points because I wish to emphasize the fact that the drainage of the melting snow, from the 280, or over, miles of mountain-sides, whose waters flow to the east, is mostly subterranean, and that the surface is dry, affording a very slight amount of water. This factor is of most importance as contributing to the dryness of the climate, a condition which is due in a large measure to the distance which separates the State from any large body of water. Within the portion of Colorado lying to the east of the mountains, that portion most frequented by invalids, there are no large bodies of water from which the air can take up moisture, and a distance of over 900 miles from the Gulf, the nearest large body of water, is an additional cause for the exceeding dryness of the air of this State. Atmospheric dryness, due largely to geographical position, is one characteristic of the climate of Colorado. Of course, this condition is also affected by

[1] Read before the American Climatological Association, Washington, 1888.

atmospheric pressure, elevation, and temperature; but in the main it is due, as I have said, to geographical position.

But of almost equal importance, as has been ably shown by the researches of Bowditch and Buchanan, is the question of soil dryness. Here, again, the conditions are most favorable. To the east of the mountains, the portion of the State most inhabited, the land falls in a gradual descent from an elevation of about 6000 feet at the foot-hills, to one of about 3500 feet at the eastern border of the State, some 190 miles distant. Its surface is well drained into the two rivers I have mentioned, whose waters come principally from the mountain-sides, and, as a fact, most of these waters sink into the porous and thirsty soil to increase the subterranean flow, or to well up again as they near the mouth of the streams. Besides this natural drainage, favoring soil dryness, there are the additional features of a sandy and porous soil, which absorbs moisture rapidly, the absence of shade to retain it, and the further absence of precipitation to make it moist, as I shall have occasion to show further on in this paper.

Another property possessed by this climate due to the nature of its position is elevation. This varies from 3500 feet at the eastern border of the State, to 4500 feet at Pueblo, 5200 feet at Denver, 6000 feet at Colorado Springs, 7200 feet at Idaho Springs, 8000 feet at Georgetown, and 10,000 feet at Leadville. So that it is possible, within these limits, to give a patient any degree of elevation that may seem desirable.

Further than that, local configuration varies so that one can have his choice of open plain or of mountain valley. He can have the winter on dry ground at Colorado Springs, Denver, and numerous other places; or he can enjoy what Dr. Frankland and others place so much stress upon, in considering Davos Platz—that is, the solar radiation intensified by radiation from the snow in valley and on peak, such as occurs in narrow valleys amongst the mountains. The large area of the State admits of great variety of location, which can be taken advantage of by the invalid, and which our physicians are now studying and learning more closely. The common characteristics, due to surface and position, are: elevation, soil, and atmospheric dryness, rarefied air, an absence of shade, and a temperate clime, varied somewhat from the main characteristic by conditions induced by rarefaction of the air, absence of atmospheric moisture, and a sandy soil.

Let us turn now to a consideration of the atmospheric conditions prevalent in Colorado. Here, again, I shall give the prevalent and main characteristics, and I take the privilege of presenting those conditions that exist at Denver, for the reason that it is the centre of the State, as regards its population, and nearly so as regards its geographical position. It is the capital, the best known place in the State, and, further, meteorological records have been kept in it for the last dozen years.

The facts that I shall now proceed to give, I have taken largely from these records; I shall refrain, however, from giving tables, because they are wearisome, and must refer you to the writings on this subject

"The chief conditions of the atmosphere," says Yeo, "that affect the climate of a place, are these: (1) its temperature; (2) its movements (winds); (3) its amount of aqueous vapor; (4) its electrical conditions; (5) its purity; and (6) its density or pressure."

Dr. Frankland, in his article—"A Great American Winter Sanitarium for the American Continent," states as the qualities of climate existing at Davos Platz, which he regards so desirable: (1) great elevation above sea-level; (2) a continuous and, during winter, permanent snow-covering; (3) a minimum of watery vapor in the air; (4) a clear sun; (5) a clear atmosphere, free from zymotic germs, dust, and fog; (6) a sheltered position favorable for receiving both the direct and reflected solar rays. These views are sanctioned by Hermann Weber, Lindsay, Yeo, Tucker Wise, and others. Some places emphasize upon the presence of ozone; but as so little is known positively about ozone and about electrical conditions of the atmosphere, I think that we may dispense with any consideration of them, simply expressing the belief that whatever advantages come from their presence are common to Colorado with other high altitude resorts.

Taking, then, the gauge of the climate as set down by these eminent authorities, let me show to what extent they exist in Colorado, and how they are considered to be beneficial.

Elevation, or diminished atmospheric pressure, is presumed to induce a more rapid circulation, which may, in many cases, be beneficial by assisting the removal of the products of disease in the chest. On the other hand, in greatly enfeebled cases, it may so hasten metabolic change as to be highly injurious.

It also increases the number and depth of the respirations, a condition of affairs which is assumed by many to be due to the fact that the diminished oxygen in the rarefied air causes a so-called "starvation of oxygen," which requires a hastening of the respirations to supply the deficiency—a theory which Dr. Hermann Weber pooh-poohs, and which seems but little susceptible of mathematical demonstration. The increase in the number of pulse-beats and of the respirations, I think, tends to regulate itself after a residence in high altitudes. Authorities agree, however, that chest expansion does occur, and this may be beneficial as calling into play unused, or but feebly used, portions of the lung.

Beneke has shown that heat is lost from the self-same apparatus more slowly on the tops of moun-

tains than at the seashore, a fact which Frankland emphasizes with reference to the sensation of cold, when he says, "The air, if still, feels warmer at an elevated station than in the lower and denser regions of the atmosphere, in consequence of the slower abstraction of heat from the body."

Hermann Weber speaks of the fact, that at elevated regions blood flows to the surface of the skin, that it thus becomes better nourished, that internal organs become unloaded, and that the elimination of carbonic acid from the blood of the lungs is facilitated.

Whatever benefits come to the human economy from a residence at high altitude, and I have mentioned some that are presumed to accrue, they are to be gained by living in Colorado, where the elevation of the inhabited portion of the State ranges from 3500 to 10,000 feet.

Humidity.—This element is highly variable in mountain resorts; it depends on the character and direction of the prevailing wind, and on the local configuration; the tendency, however, is toward dryness rather than humidity. I have already shown how the geographical position and configuration of the surface of Colorado tend to the production of atmospheric dryness; of course, the rarefaction of the air aids in the same direction. But now let me state the facts:

The average mean relative humidity for a series of years I have calculated to be only 45.8 per cent. of saturation, as against 69 per cent. in Jacksonville, Florida; 70.2 per cent. in New York; and 65.8 per cent. in Los Angeles, California. I have also shown, in a previous writing, that this mean is reduced to an average mean of 41.5 per cent. at noonday for the eight winter months of September to April inclusive, and that it not infrequently sinks to 25 per cent. of saturation; a condition that in Switzerland would endanger the production of the Föhn.[1] If, instead of relative humidity we speak of absolute humidity—*i. e.*, the number of grains of vapor contained in a cubic foot of air—the showing is immensely in favor of Colorado, inasmuch as rare air at a given temperature will hold less moisture than a denser air at the same temperature. The mean absolute humidity for Denver for a series of years was only 1.81 grains of vapor, as against 5.38 grains at Jacksonville; 3.02 at New York; and 3.77 at Los Angeles.

All authors attest the value of dry air in the arrest or care of pulmonary disease, and the influence of moisture in its production. A patient in search of a dry air cannot do better anywhere in the United States than to come to Colorado.

Sunshine.—It is in this particular that the Colorado climate is particularly strong. Figures show that, according to the signal service method of reckoning cloudy days, there are only 46 such in a year in Denver, as against 87 in Jacksonville; 109 in New York; and 51 in Los Angeles. This, however, takes into consideration the whole twenty-four hours. If we approach the subject in another way, with reference to the ability of a patient to be out-of-doors during the daytime, we may take as a gauge what occurred in the winter of 1884–85, considering the months of September to April inclusive, in which time I find that there were only eleven days, out of two hundred and forty-two, which were cloudy all day long—that is, when the sun did not shine at all from 9 A.M. to 5 P M.

Certainly a counting of three hundred and twenty days of clear or fair weather in a year, when the whole twenty-four hours is considered; or of two hundred and thirty-one days out of two hundred and forty-two days, taking the hours from 9 A.M. to 5 P.M., is a tremendous showing of the extent of sunshine that occurs in Colorado,

But this is not all. The principal resorts lying, as they do, on the edge of the plains, and not being sheltered by mountains, enjoy a number of hours of sunshine a day such as few mountain resorts can boast. A comparison will make this clearer. Dr. Tucker Wise has stated that on the first day of January the number of hours between sunrise and sunset in the Alpine resorts are as follows:

	Hours.	Minutes.
Maloja	7	10
Wiesen	6	10
Pontresina	6	40
St. Moritz	5	5
Davos Platz	4	57
Andermatt	3	30

By way of comparison I introduce Denver, nine hours and seven minutes, or nearly twice that of the world-renowned Davos.

Not only does Denver enjoy so many hours of sunshine, but there is the additional consideration that the sun is up, warming the air, a number of hours before the invalid gets out-of-doors, while at Davos and other Alpine resorts the sun and the invalid make their appearance together. The following figures of sunrise will show this; Maloja, 9.25 A.M.; Wiesen, 10.35; Pontresina, 8.30; St. Moritz, 10; Davos Platz, 10.03; Andermatt, 11.45; Denver, 7.30, for the first day of January.

Knowing the warming influence of solar radiation, the part that these early hours of sunshine play in making the air comfortable for the invalid cannot be overestimated. It is like having a fire built in a cold room an hour or two before a patient arises, or having it lighted just as he tumbles out of bed.

One more influence of sunshine, and I will then proceed to other topics. The mental influence, the cheer which bright sunshine, clear, warm air, and a dry soil give to a life out-of-doors, thereby *inviting*

[1] A humid south wind on the Swiss lakes.

and not forcing the invalid to a drive, a walk, a ride, a game of tennis, and to all healthful out-of-door influences. I cannot lay too much stress upon this factor of Colorado sunshine—an important, if not the most important, feature of our climate. I would like to touch on it from the more poetic side, telling of the color it gives to daily life, but I must hasten to other considerations.

Temperature.—The question of the temperature of the Colorado climate is one of the most difficult to treat, because it involves a consideration of the difference between day and night, between the sun and the shade, between mountain and plain, between month and month. Broadly speaking, the days of the summer months are uncomfortably hot, in the cities, but even then the nights are cool, generally requiring that one be covered with a blanket, so as to be comfortable.

There is no denying the fact that Denver and even Colorado Springs were intolerably hot this past summer. Even admitting this, the advocates of this climate can respond that the invalid should go to the mountains, where in Extes Park, Manitou Park, Georgetown, Poncha Springs, Twin Lakes, and other places, he can breathe the purest air and have comfort. But the main consideration is one of the winter months, say from September to April inclusive. Here, again, I must admit many of the adverse criticisms made in regard to our climate. One writer, hunting the records over, for years, accuses us of having a diurnal change of eighty degrees in twenty-four hours, and he was correct, such a variance does occur—occasionally.

The meteorological conditions producing this change involve so well known a principle that it scarcely seems worth while to discuss them. Land radiates heat more rapidly than water, it becomes heated and loses its heat much sooner than water; and a dry, sandy soil will do this more rapidly than a moist. Shade and vegetation hinder both processes, so that the absence of shade favors both the heating and the cooling process. A rare, dry air favors the transmission of solar heat, by robbing it of but little of its intensity, and it also aids and abets terrestrial radiation.

These, then, are the conditions existing in Colorado: a dry, sandy soil; a lack of shade and vegetation; a rare, dry air. The result is a rapid warming up under the influence of the sun; a rapid cooling when that influence is removed. Hence we do have warm temperatures by day, and cool temperatures by night, and the difference does, at rare times, amount to eighty degrees. But, for the purposes of an invalid, the warmth and not the cold should be considered, because the latter comes at night when the invalid should be housed and can regulate the temperature, while the former is at mid-day when he is getting his exercise out-of-doors. A temperature of 62° at noon is of more importance to him than one of minus 18° at midnight. But Colorado climate is, in winter, a cool climate. The monthly mean for

January, 1886, at 1 P.M. was	27.3°
February, " " " "	48.0°
March, " " " "	41.1°
April, " " " "	52.3°
May, " " " "	74.3°
June, " " " "	75.1°
July, " " " "	85.2°
August, " " " "	81.5°
September, " " " "	72.0°
October, " " " "	64.2°
November, " " " "	41.3°
December, " " " "	45.5°

This is the temperature of the air at the time of day when an invalid is most likely to be out of doors. If these means seem too cold to the student of climate, I can only urge in extenuation: (1) To quote from Dr. Hermann Weber: "It is only a remnant of our old prejudice which can make us afraid of dry, calm, moderate cold;" or (2) as pointed out by Dr. Frankland, and as every person who has had experience knows, that "the air, if still, feels warmer at an elevated station than in the lower and denser regions of the atmosphere;" and (3) that the solar radiation must be taken into consideration, which transforms, to one in the sunshine, the air temperature from one of 27.3° F. at noon in January, to 92.5°; or the air temperature of 45.5°, in December, to the heat in the sun's rays of 100.2°.

No one, I think, need be apprehensive of cold days in Colorado, unless he be so much impoverished in physical condition as to make him an unfit subject for our climate. In most cases the inhalation of dry, cold air stimulates the respiratory functions to greater activity, leading, as Dr. Weber asserts, to greater expansion of the lungs and thorax, to improvement of the appetite and nutrition, thus exercising a beneficial influence on the course of phthisis.

Winds.—Statistics show that the average daily movement of the air in Denver is 145 miles as against 238 miles in Boston, 207 in New York, and 159 in Jacksonville; the data further prove that at 9 A.M. the average hourly velocity is 6.7 miles during the eight months, September to April inclusive, 8 miles at 1 P.M., and 8.6 miles at 5 P.M. Despite this low average, we are constantly accused of having high winds, and of the dust and sand storms being so disagreeable as to be detrimental to an invalid. With a view of meeting this criticism I collected data, awhile ago, which showed that in the year 1886 there were only twenty-three days in which there occurred a wind of eighteen miles or over, at two consecutive observations of the three 9 A.M. and 1 and 5 P.M., and that there were about an equal number of times when there was a wind of equal

velocity at only one of these three observations. Now, a wind of eighteen miles velocity is not a high wind. It is less than double the average velocity of the air in Boston, and is not more than a stiff breeze.

We do have occasional high winds, and they occur more frequently in some places than in others, but we are not entitled to the reproach so frequently hurled at us, that the winds and dust storms spoil the climate. The truth is, that owing to the sandy character of the soil and the absence of snow covering, a wind of moderate velocity will lick up the dust and set it a flying, while a stronger wind, as of eighteen miles per hour, will set up what is called a dust storm. These are no more disagreeable than I have witnessed on Commonwealth Avenue, in Boston, many and many a time. From the nature of things they are more frequent in the narrow streets of Denver than in the open country, or in the health resorts, and are in no way to be ranked with the cyclones of Kansas, or even with the gentle and moderate breezes of the peaceful Connecticut Valley, which I have known to blow over bridges and tear up hundreds of elm trees by the roots.

These dust storms are disagreeable, principally so in Denver, where the streets are the natural soil, which becomes dried by the ardent rays of the sun and pulverized by travel, so that they have to be constantly watered, even in January and February. But the frequency and violence of these storms have been very much overstated, and they do not seriously impair the invalid's comfort, or keep him indoors much of the time.

Precipitation.—The average yearly fall of rain and snow (melted) is 14.77 inches as against 55.94 in Jacksonville; 49.47 in Boston; 42.7 in New York; and 18.97 in Los Angeles, and of these 14.77 inches the greater part falls in the spring and summer months. Snow does not lie upon the ground in winter, and when it falls it is rapidly licked up by the dry breezes or drunk up by the porous soil.

Drs. Frankland and Weber consider a snow covering in winter of advantage because it keeps down germs, and also because, by reflecting the sun's rays, it increases the solar radiation. The former reason may be a valid one, but is it not counterbalanced by the deleterious effects of the thaw and by the decomposition and decay that are then induced? Is it not also more than counterbalanced by the disadvantage that a heavy covering of snow and ice is to the invalid who wants to drive, ride, play tennis, walk, climb, and lead an out-of-door life from nine o'clock in the morning until five o'clock at night? We in Colorado think so, and we prefer free and untrammelled locomotion on dry soil, even though there may be a few germs afloat, to wet feet, cold, hampered exercise, thaw, and everything that must follow up the existence of a deep snow covering.

As regards solar radiation, I have previously shown that while the mean average in the Maloja for November, December, January, and February was 103.75°, that in Denver it was 99.75° for the same time, a difference of four degrees in favor of snow covering, but not of material difference when one considers the actual temperature. If an invalid is not comfortably warm in a sun temperature of 99.75°, it is to be doubted very much whether 103.75° will warm his thinned blood.

Fogs.—Almost unknown. In the winter of 1884-1885 there is not a record of a single fog from the 1st of September to the 1st of May.

Purity of the Air.—I have left a consideration of this factor to the very end, because I wish to bring out certain points in connection with it. Generally speaking, every one acknowledges the purity of mountain and of sea air. We are in the habit of saying that it contains more ozone—a factor of which we do not know much. Basing our ideas upon the investigations of Pasteur, Tyndall, and Miquel, we say it is aseptic, free from germs, and we place the limit of germ-life at elevations ranging from 5000 to 7000 feet. I wish to raise the question whether we are right in so doing, and whether this principle may not be varied by other influences, so that instead of being taught to believe that altitude, in itself, is a germicide, we shall not rather believe with Hermann Weber, "That wherever a large number of human beings, especially invalids, congregate, there the purity of the air is likely to be impaired."

That there is germ-life in the air of Denver and of towns in Colorado I am assured. Urine decomposes nearly as readily in these places as in Boston, and if one wishes to be sure that the casts are not eaten up by little vibrioles, he must make his microscopic investigation early, just as he would in the East. Moreover, I have seen dead cattle lying on dry ground in Colorado, at varying elevations, subject to the drying effect of the sun's rays, which would desiccate, shrink up, and fall to pieces; and I have seen other dead cattle, at equal elevations, lying where there was some moisture, from which a most noisome stench would emanate. Certainly we do have decomposition at all elevations in Colorado, and that means putrefaction and, consequently, germ-life.

Where there is an absence of putrefaction in our climate, it seems to be due to the dryness of the air rather than the absence of germ-life. But even admitting the presence of germs, it does not militate against the purity of the Colorado air, for whatever qualities belong to mountain air certainly can be found in the air of our Rocky Mountains, whose sides are studded with towns up to an elevation of 11,000 feet, and whose summits tower into the skies at 14,000 feet,

It has often been said that different animals seem

to possess different degrees of sensitiveness to the rare air of mountainous regions, and that the cat cannot exist at great elevations. This assertion, with others, should be subject to modification, for I know of one cat that lived for ten years at an elevation of 11,000 feet, and in Leadville, 10,000 feet, they are not at all absent.

Résumé.—These, then, are the general characteristics of the Colorado climate: (1) elevation; (2) dry air; (3) a large amount of sunshine; (4) a warm sun temperature; (5) a somewhat variable temperature, cool, not cold, in winter—cold during a winter's night but comfortable at mid-day; (6) a moderate motion of the air, with occasional high winds; (7) a small snow- and rain-fall; (8) the absence of fogs; (9) a pure air; (10) a dry, sandy, well-drained soil.

But the simple narration of these climatic conditions in no way rounds out a just description of the arrest of consumption as applied in the Colorado climate. It does not tell of the local conditions of the different resorts; of the out-of-door life; of the diet and exercise; of the home life; of ranch life; in fact, of the various local conditions and of the means adopted to aid recovery, many of them varying from those employed elsewhere.

A description of this side of the subject furnishes too large a field to be handled by me at the present time, and in their individual application to the various cases of consumption they should be left entirely in the hands of a competent physician residing in that climate. One feature cannot be too strongly emphasized as characteristic of the Colorado cure. It is an all-year-round resort and not simply a winter resort, and, further, our State is an active, growing community, and there is plenty of room for the energies of the most active, when once a recovery is secured, so that a return to old methods and haunts is not to be recommended.

The State now claims a population of over 350,000 inhabitants. How many of these have come for reasons of health it would be difficult to say. Every town and every city has its large percentage of such people, who, in their persons and in the energy of their lives, are the strongest testimony that can be given to the efficacy of the Colorado climate in the arrest and cure of pulmonary disease.

HYPERPLASIA OF THE LYMPHATIC TISSUE OF THE PHARYNX AND NASO-PHARYNX.[1]

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THE important group of diseases embraced in the title of this paper are of the utmost interest to the general practitioner, and, although they have been known for some time, experience has taught me that they are often overlooked, or mistaken for other affections.

Before entering upon the pathology and the clinical features, I desire to offer a few remarks upon the anatomy of our subject. The lymphatic tissue in question is embedded in the mucous membrane of the pharynx and naso-pharynx, either as a uniform, well-defined infiltration, or as so-called follicles, also named adenoid tissue by Hiss, and it appears under three forms. We have a simple, diffuse infiltration of the connective tissue with lymph-cells, further denser foci extending over a larger area—for instance, Peyer's glands of the intestines; and, finally, a circumscribed form, which is known under the name of tonsil. The lymphatic tissue appears in the locality which interests us in this paper, in an aggregated as well as disseminated form, and is distributed uninterruptedly throughout the pharynx and naso-pharynx. Waldeyer gave it very appropriately the name of lymphatic ring of the pharynx. Its position is almost vertical, and beginning at the naso-pharynx with the pharyngeal or Luschka's tonsil, it extends to the orifice of the Eustachian tube, where we have a larger aggregation of follicles, the tubal tonsil. Turning downward along the posterior edge of the soft palate, and around the posterior pillar, it reaches the faucial tonsil, and returns across the base of the tongue in a similar manner, to the naso-pharynx.

The abnormal conditions which we have to consider occur almost exclusively in localities where the tissue appears in the aggregated form, the tonsils, and its diseases, as a rule, have either an inflammatory or hyperplastic character. It is only the latter we will treat of to-day, and as the process, occurring in different parts of the pharynx, presents different symptoms and requires different treatment, each affection has to be considered separately. In order not to extend my paper unduly, I have selected the three regions where hypertrophy is most frequently observed, viz., the naso-pharynx, with the pharyngeal tonsil; the pharynx, with the faucial tonsils; and the lymphatic tissue at the base of the tongue, also called lingual tonsil. I shall only dwell at some length on the pharyngeal and lingual tonsils, and but briefly consider the hypertrophy of the faucial tonsil, so familiar to all practitioners.

Hypertrophy of the pharyngeal tonsil, as well as adenoid vegetations of the naso-pharynx, which latter name is given to these growths in children by their discoverer, William Meyer, of Copenhagen, are far more frequent than is generally assumed. It has been my good fortune to meet with an unusually large number of such cases since my return to the city, in September, and I preserved the specimens removed within the last three months, which I beg to hand you herewith. Quite a number of cases were brought to my office, in which treatment had

[1] Read before the New York County Medical Association, December 17, 1888.

been instituted for hypertrophic tonsils, or nasal catarrh; of course, without the desired result.

Regarding the age of patients, cases have been reported in which symptoms of the disease had been noticed from birth; but the children coming under observation are generally two years and older, the largest number being between five and fifteen years of age. With increasing age, the liability to the disease decreases proportionately. Sex does not seem to exert a special influence, the number of male and female patients being about equal.

In the majority of cases we observe one or more of the following symptoms: catarrh, alteration of the voice, impediment of respiration, affections of the ear. Although there are cases without catarrhal symptoms, most patients have more or less secretion of mucus either in the nose or the pharynx, and, in some instances, this is the chief reason for seeking medical advice. When hypersecretion was present, I found it oftener in the nasal cavities in children, whilst adults complained more of an abnormal sensation of mucus in the pharynx. But there are undoubtedly a considerable number of patients whose nostrils are perfectly free from discharge, and present no anomaly whatsoever.

Alteration of voice, and still more the changed character of the respiration, are the symptoms most apt to attract the attention of the parents to the fact that their child is unwell, and requires treatment. The voice has lost its resonance, is muffled, is called "dead voice" by William Meyer. Children as well as grown people speak with a nasal twang, and the nasal sounds are imperfectly pronounced. Instead of *m* and *b* they will say *n* and *d*. The voice is similar to that observed in paralysis of the soft palate, the functions of which are often interfered with when the vegetations are very abundant.

The impediment in respiration is generally the first symptom observed by the relatives of the patient, and, at the same time, the most important one. It does not require a very large development of these growths, especially in the small naso-pharynx of children, to make nasal respiration difficult or altogether impossible, and the patient becomes a mouth-breather. I shall not here dwell in detail on the function of the nose as an organ of respiration—for instance, for warming, moistening, purifying the air—I shall only speak about the more important features noticeable in our little patients.

To begin with the nursing infant. When the child takes its mother's breast, it has its mouth closed and breathes through the nose. If this is impossible, nursing is frequently interrupted to allow breathing, the child becomes fretful, and not receiving sufficient nourishment, his physical development seriously suffers. Furthermore, children with adenoid vegetations have restless, agitated sleep, they snore, the respiration is labored, stops occasionally altogether for a short time, the child becomes partly awake, only to begin the same turn over again as soon as asleep. These symptoms are so distressing that instances have been reported in which, after successful removal of the vegetations, parents were for several nights in a state of anxiety, owing to the absence of the familiar and accustomed noise and snoring.

This mode of respiration in time also exerts deleterious influence on the configuration of the chest and face. The chest-walls remain flat, are consolidated in the lower portion, corresponding to the insertion of the diaphragm, which attempts to overcome the impediment of respiration by energetic contractions. This condition, known and described for some time past as due to hypertrophy of the faucial tonsils, is just as often brought on by adenoid vegetations. The imperfect aëration and decarbonization of the blood make the child pale and anæmic. Such children are languid, their mental development is often retarded, they are bad scholars and slow in perception. Mouth-breathing of many years changes the aspect of the face. The open mouth, the protruding teeth of the upper maxilla, the disappearance of the naso-labial folds give the face a stupid expression.

A large number of our patients suffer from affections of the ear—according to Hartman, seventy-four per cent.—and all degrees of aural disease, from slight deficiency of hearing to purulent otitis, come under observation. Sometimes the aural trouble is only functional, without pathological changes, and is then caused by the pressure of the vegetations against the Eustachian tube, and consequent closing of the latter. I have treated several cases of hard breathing, in which the ear was sound and the treatment exclusively confined to the disease of the naso-pharynx, with the desired result.

According to Schaefer, 19 out of 100 cases of adenoid vegetations are complicated with hypertrophy of the faucial tonsils, and it thus happens that the symptoms are often attributed to the latter, and the disease of the naso-pharynx is overlooked. A limited number of patients complain of supra-orbital neuralgia. Headache, asthma, and also enuresis have been reported cured after removal of the vegetations.

The diagnosis is not so difficult as it would seem at the first glance, although a satisfactory rhinoscopical examination is out of the question in very young children. The best, easiest, and quickest way to ascertain the condition of the naso-pharynx is the introduction of the finger behind the soft palate. Whoever has touched these soft, velvety, mushroom-like growths, will always recognize them again. Although a mistake is scarcely possible, it is advisable to familiarize one's self with the sensation the finger experiences when introduced into a normal pharynx, in order to accomplish the examination in a safe and quick manner.

The treatment is highly satisfactory, as after destruction of the vegetations they are not apt to grow again. Topical treatment with iodine solutions, caustics, etc., having proven too tedious and ineffective, surgical proceedings have been generally adopted. Some surgeons operate by pushing ring-knives through the nose into the naso-pharynx, but the majority prefer to operate by introducing either curettes, sharp spoons, or the post-nasal forceps through the mouth. The latter instrument has been subjected to many modifications, and is now in general use. It is best to remove as much of the growth as possible at one sitting, and to assure ourselves by rhinoscopic or digital examination of the result of the operation. There is no objection to the use of ether in the operation, and, in fact, some operators always employ it. I generally succeed without ether, and only in rare instances have been obliged to introduce the forceps more than twice, or, at the most, three times. Too harsh and rough operating may be followed by fever and general malaise, also purulent otitis; but I, myself, have never experienced an untoward after-effect, except once, an accident which, to my knowledge, has not been reported by others. The patient, a lady eighteen years old, had a broad-seated hypertrophy, the larger portion of which was removed at the first sitting. A second operation was performed four days later to remove the remaining basis, and was accomplished without great difficulty. After her arrival home she was seized with a most violent hemorrhage, which recurring again the next day, necessitated the plugging of the naso-pharynx. The patient made a complete recovery.

After operation the patients should remain at home for a day or two, and when there is free discharge from the wound-surface, detergent and disinfectant solutions can be sprayed or injected into the naso-pharynx and nose.

The second part of our subject, the hypertrophy of the faucial tonsils, is so well known that I shall confine my remarks to two points only, viz., hemorrhage after tonsillotomy, and the use of the galvano-cautery.

Excision of the tonsil is always followed by a slight loss of blood, sometimes by a serious, even dangerous hemorrhage. In a very large number of tonsillotomies in my practice, all of which were performed with Tiemann's tonsillotome, three copious hemorrhages occurred. In the first two cases I was present when the bleeding took place; the third patient was already far away from my office when the bleeding began, and he had to call in the services of another physician. The history of the three cases is briefly as follows:

Case I.—A strong, healthy woman called in the afternoon at the German Dispensary and complained of throat trouble, which, on inspection, was found due to a hypertrophic tonsil. Except a slight hyperæmic condition of the fauces, nothing abnormal could be seen, and the excision was easily performed, followed by the usual slight bleeding. Toward evening I was called in great haste by her husband, who informed me that his wife had been bleeding ever since her arrival home from the dispensary. When I reached the patient, I attempted first to remove the coagulated blood, in order to find the bleeding vessel, if possible. During the procedure the woman fainted, and whilst being carried to a lounge, began to throw up blood in quantities I had only seen in pulmonary hemorrhage. Not to lose any more precious time, I inserted my index finger into the pharynx, and by using and continuing for ten minutes pressure against the tonsil and counter-pressure from the outside, effectually arrested the hemorrhage.

The second case was similar to the previous one, except that the bleeding began immediately after excision of the tonsil.

Case II.—The patient, a lady of about twenty years of age, was operated upon at the New York Polyclinic, by one of my assistants, in my presence, and the means employed to stop the hemorrhage were the same as in the preceding case.

Case III.—The third patient was a physician, on whom I operated in my office, and who left me after the first slight loss of blood had stopped, without any untoward symptom. When I saw him again, a week later, he related to me the following: On his way home he began to spit blood, and thereupon entered a drug-store, for the purpose of applying hæmostatics. Unable to control the bleeding, he went to the office of a medical friend, who, after several prolonged and fruitless efforts to stop the hemorrhage, finally took him to one of our hospitals, where it ceased after the patient was put to bed. It took him several days to overcome the ill-effect he had sustained from the loss of blood.

If I were asked, Have we positive signs by which we can determine if a tonsillotomy is likely to be followed by a hemorrhage, or not? I must say, we have not. But I have profited by my experience, and, although not slow in employing the knife, and preferring tonsillotomy to all other destructive means, I have, in two instances, flatly refused to operate. The two patients had hyperæmic, angry, red-looking tonsils, much more so than the first patient, whose history I have just related. The tonsils were not in an acute state of inflammation, but there was decidedly chronic enlargement. In both instances I dreaded hemorrhage so much that I did not practise excision. In other cases we may receive the warning of a possible hemorrhage during the operation. When the instrument cuts through the tissue with difficulty, finds much resistance, or when we hear or feel a grating sound, we may be prepared for a subsequent hemorrhage. The connective tissue, in such cases, is either so prolific and dense, or interspersed with minute calcareous deposits, that the cut

bloodvessels cannot retract and collapse, but are kept open by the unyielding, hard tissue. I may add, that I never saw alarming hemorrhage follow tonsillotomy in children.

The employment of the galvano-cautery as a means of reducing enlarged tonsils has, of late years, gained much favor amongst the profession. Quite a number of surgeons prefer it to the cutting operation, on account of dread of hemorrhage, but in a certain class of cases it is, so to say, the only means to the desired result, leaving out of consideration caustics, like chromic acid, Vienna or London paste, etc. In inflammatory processes of the tonsils the diseased organ often forms adhesions with the anterior pillar of the fauces, which then covers the tonsil, either hiding it entirely from view, or letting only so small a part protrude beyond it that it is impossible to grasp it with any cutting instrument without injuring the pillar. Here the use of the galvano-cautery is in place, and very few sittings (from five to ten) are sufficient to bring on the necessary reduction in tonsils of large size. The platinum point is immersed either into a crypt, or into the mass of the tonsil itself, and several days have to elapse before the reaction has subsided, the slough comes off, and a second application can be made. The instruments required are either a fine cautery-knife, or a pointed platinum electrode, and any good cautery battery.

The third and last subject of my paper, the hypertrophy of the lingual tonsil, has only of late years been more fully investigated. As I read an essay on this subject a year ago,[1] I shall only dwell on the more important points, and add a few observations made since that time.

The locality where we have to look for the lymphatic tissue is at the very base of the tongue, in the glosso-epiglottic fossa. The affection we treat of is not a hypertrophy of the circumvallate papillæ, which were erroneously by some writers regarded as the seat and source of the disease. The lymphatic tissue is situated back of and below the papillæ, which may be hidden and covered by the growth, if it is very prolific, but which are not themselves diseased.

The hypertrophy is, contrary to adenoid vegetations and enlarged faucial tonsils, generally seen in adults, and most easily discovered by the laryngeal mirror. If the growth is excessive, it comes in contact with the epiglottis, sometimes overlapping its free edge and seriously interfering with its free movements.

The chief symptoms we notice in such patients are as follows:

1. The sensation of a foreign body, or of pressure in the throat. Everything imagination can think of, patients believe to be lodged in their throats. To remove this sensation, frequent attempts at deglutition are made, the so-called empty swallowing, whilst there exists no actual interference with the partaking of food. Some cases of globus hystericus find their explanation in the presence of hypertrophic glands.

2. Interference with speech and singing voice. When the enlarged tissue comes in contact with or impinges on the epiglottis, the latter is exposed to friction, and greater exertion is required to produce a sound. The natural consequence is, that patients easily become hoarse, or that their voice is weak, breaks down often and suddenly, and loses its clearness.

3. The lymphatic follicles sometimes become diseased in a like manner as we see in follicular tonsillitis, when the patients experience actual pain.

4. Some writers have observed radiating pains between the shoulder-blades, in the larynx, trachea, etc. One of my patients had shooting pains on each side of the throat, extending toward the ear.

5. Cough is a very frequent and important symptom. It is either a violent, almost incessant, or a spasmodic cough. Especially the latter often gives rise to great anxiety on the part of the patient or his relatives, on account of the fear of pulmonary disease. It is probably due to the friction of the epiglottis and the tongue against each other during their movements.

6. A few cases of asthma have been reported cured by destruction of the hypertrophic follicles.

The above six symptoms were enumerated in my essay of last year. To these we must add two more, which I had occasion to observe since that time, viz., slight bleeding and formation of an abscess. The bleeding occurred in a woman who complained of a harassing cough disturbing her night's rest, and of bloody sputa during the last three months. Examination revealed enormously hypertrophied follicles impinging upon the epiglottis, and minute extravasations of blood at the tip of some of the most prominent follicular glands. The formation of an abscess in a large mass of follicular tissue was seen in a man who expectorated a small teaspoonful of pus tinged with blood, every four to six weeks during the preceding year. Before this event took place, he felt a fulness and slight soreness in his throat, interfering with deglutition, which symptoms immediately ceased afterward. Inspection, which took place one day after the discharge, showed a ragged, irregular condition of the lymphatic tissue, and one large mass on the right side of the base of the tongue, which had formed adhesions with the lingual surface of the epiglottis. Drops of pus exuded from the top of this mass, and, when the galvano-cautery was applied, the electrode could be seen to enter a small cavity.

The treatment of this affection consists in the destruction of the redundant tissue. If small and

[1] Medical Record, December 17, 1887.

soft, applications of Lugol's solution in different strengths may suffice; if larger and denser, stronger caustics are required—for instance, chromic acid, Vienna paste, etc. The best remedy is the galvano-cautery, which is applied in a similar manner as in hypertrophic tonsils. If there is a lobular mass present, which can be engaged in a snare, I am in the habit of using my irido-platinum cautery snare. The wire used with this snare is an alloy of iridium and platinum, having more elasticity and resiliency than platinum alone, and resembling steel wire. It was originally designed for the removal of posterior turbinated hypertrophies of the nose, as described in the *Medical Record*, March 17, 1887, but I found it also very useful for many other purposes, especially in cases in which the softness and flexibility of the platinum wire render operations difficult—for instance, the removal of mucous polypi in the nasal cavities, of anterior turbinated hypertrophies, pedunculated growths in any cavity, etc.

In conclusion, I would state that I have endeavored to present a series of pathological conditions interesting alike to the general practitioner and specialist, and I hope that I may have succeeded in bringing forth all the practical points in a practical manner.

OPERATIVE PROCEDURES IN HYPERTROPHY OF THE PROSTATE.[1]

BY R. D. WEBB, M.D.,
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CURATIVE measures in hypertrophy of the prostate received but little attention by the older masters of surgery. It was looked upon as a natural sequence of age, and by many regarded as a conservative effort of nature to avoid stillicidium.

Mercier, to whom we are indebted more than to any other surgeon for directing attention to this trouble, commenced his studies of the subject in 1836, and published his *Researches* in 1841. Based upon the fact,—to which he was the first to give prominence,—that a large proportion of cases of obstruction of urine from hypertrophied prostate was due to median enlargement, he instituted his operation of punching an artificial urethra through this median obstruction; but it was not until within the present decade that his labors and operation were generally known. Dr. J. W. S. Gouley, after visiting France, where he met Mercier, introduced his operation into the United States as late as 1878, and he is the only one, so far as I am aware, who has performed it in this country.

These *Researches* of Mercier, and a knowledge of the fact that he had relieved over four hundred cases by his operation, without serious results, a few fortuitous instances in perineal and suprapubic lithotomy, with accompanying enlarged prostates, in which the median bar had been divided, or intravesical pedunculated outgrowths removed incidentally, opened up to the minds of surgeons hope of relief, even in the advanced stages of hypertrophy of the prostate; and the last decade has witnessed a decided advance in the treatment of this former opprobrium of medical science.

Retention of urine being a prominent feature of hypertrophy of the prostate, it was natural that relief should be sought in the line of retention from strictures of the urethra, which had long been familiar to surgeons. Hence the first efforts at relief were in *punctures* of the bladder, which had for their object only relief of the retention, and did not aim at permanent relief. These were made (1) by the canula or aspirating needle into the bladder above the pubis, (2) by the rectum, or (3) through the gland itself, and (4) suprapubic incision and puncture.

The first two need only to be mentioned as they aimed only at temporary relief.

Puncture through the gland itself.—Mr. Reginald Harrison, at the British Medical Association, Liverpool, 1883, said:

"I tapped the bladder from the perineum through the enlarged prostate, quite independent of the course of the urethra. A canula was retained in this position for two months, with great comfort to the patient. He was eighty years old, but completely recovered and lived for several years; and in this I include the acquisition of the natural and unaided use of his bladder" (*Medical Record*, January 21, 1888).

This is similar to the forced catheterism practised by John Hunter and Sir Everard Home, but "abandoned as uncertain and dangerous."

Mr. Harrison himself, speaking of this method of puncture, before the British Medical Association in August 1885, says:

"I must admit that, following the practice of Syme and to some extent of Edward Clark, I have decided preference for an incision through the perineum on the twofold ground of safety and comfort" (THE MEDICAL NEWS, August 18, 1883).

Suprapubic incision and puncture.—Sir Henry Thompson, in a communication to the Royal Medical and Surgical Society (*British Medical Journal*, June, 1879), suggested an opening into the bladder by suprapubic incision and puncture. He thus describes the method:

"A curved hollow sound being introduced into the bladder, the point was made to project against the wall of the organ just behind the symphysis. A small incision being then made, the end of the staff was sought with the finger and the bladder carefully punctured; care being taken not to make the incision too large so as to avoid the escape of urine by the side of the tube to be introduced. A gum-elastic tube, having a shield

[1] Read before the Southern Surgical and Gynecological Association.

like that of a tracheotomy tube, was then passed into the end of the sound, and thus introduced into the bladder."

Mr. Harrison, in speaking of the different methods of puncture of the bladder for the relief of retention, in the Lettsomian Lectures, before the Medical Society of London, January, 1888, says:

"Excellent in design as these proceedings are, they appear to me to fall short in an important respect—in not dealing with the cause of the obstruction. Two of these measures (suprapubic and per rectum) are open to objection on the ground that these artificial canals are inconveniently placed as permanent vents, for it would seem desirable that the urethra should, as far as possible, be utilized, and the external opening for the escape of the urine be dependent" (*Medical Record*, January 11, 1888).

But none of these methods of puncture is now in favor. The surgery of the present day demands more permanent relief by removal of the cause.

The Mercier operation.—The pioneer in the more radical processes was Mercier, of Paris. He was the first to recognize fully the important fact that a large proportion of cases of obstruction to the passage of the urine in these cases was due to an obstructing bar or enlargement of the median portion near the neck of the bladder, often without any serious enlargement of the lateral lobes. With this fact in view, he devised his operation of punching through this obstructing bar a channel, or artificial urethra. The operation was performed by an instrument resembling a fenestrated lithotrite. The beaks of the blade were shorter, and the curve more abrupt, as in the Mercier curve of the Benas gum catheter. The edges of the male blade were smooth instead of striated, as in the lithotrite, so that in passing through the fenestrum of the female blade it made a clean-cut channel through the obstructing bar, which was held between the beaks. "The operation, despite the fact," as we are informed by Dr. Gouley (*Lancet*, July 17, 1880), "that its originator had performed it upward of four hundred times with excellent success, and without the occurrence of abundant, much less fatal, hemorrhage, has not been looked upon with confidence." This, no doubt, arises from the difficulty of nice differentiation in the character of cases, and the conservative spirit of the past, which tends to delay operative interference in these cases as long as possible. The operation is suited only to those cases (for which it was designed by its inventor) in which the obstruction is from a bar or band at the neck of the bladder, and "should be limited in these," says Dr. Gouley (*Amer. Surg. Assoc.*, 1885), "to cases in which the obstructing bar is not exceeding one-half or three-quarters of an inch in thickness."

Dr. Gouley has somewhat modified Mercier's instrument. In an article read before the Surgical Association, 1885, he thus describes his modification:

"On account of the difficulty which I have experienced with Mercier's prostatectome in surmounting from behind forward the urethro-vesical obstruction with the male blade, I devised a prostatectome, of which the following is a brief description. The instrument resembles an ordinary modern lithotrite. It consists of a male and female blade, the one sliding into the other. The male blade is hollow, its sides are vertical, and its superior portion a little rounded. It is welded to a tubular shaft, in the centre of which is a long needle worked by a button at the proximal extremity of the handle. The object of the needle is to transfix the prostatic valvule or tumor, and hold it in position from the moment it is seized till it is cut and extracted. The beak is hollow to receive the piece of valvule."—*Gaillard's Journal*, July, 1885.

The principal advantage this instrument has over that of Mercier's is in the angle of the beak with the blades. In Gouley's instrument it is less abrupt (Mercier's being almost rectangular), and thus passes over the obstructions with greater ease. It is also lighter, and the needle adds an additional safety in retaining and extracting the incised portion of the obstruction.

Bottini's operation.—Closely allied to Mercier's method of punching an artificial urethra is the method of Bottini, of Pavia, which he states he has followed for ten years (THE MEDICAL NEWS, Feb. 11, 1888). He formed an artificial urethra by means of a galvano-cautery. The operation has been termed thermo-galvanic prostatectomy. It consisted in producing an artificial urethra by means of galvanic cautery instead of the punching process of Mercier.

In one of the cases reported, a man of sixty-eight years was restored to complete health, with full functions of the bladder, in three months. In another — Dr. Musatti—the catheter was withdrawn on the fifth day, and the patient left his bed two days later. The result was great improvement in health, and micturition every five or six hours. Dr. Musatti declares the operation less painful than cauterization of the prostatic urethra with nitrate of silver. This may be used not only for the removal of the obstructing bar at the neck of the bladder, but also where the obstruction is from the enlarged lateral lobes. This gives it a wider range of application than the Mercier process. While it has features which recommend it in certain cases, it is not without danger, and has not been used in a sufficient number of cases to warrant its general introduction. It is better thought of in Italy and Germany, where it has been more often used than in this country.

Newman's method.—Dr. Robert Newman, of New York, claims to have used electrolysis, or thermo-galvanic absorption, with a good degree of success. The instrument consists of a smooth sound with a

fenestrum at its lower extremity. At the opening is a piece of platinum wire, in connection with a galvanic battery. The current is kept up only for a few seconds, and repeated at intervals of three to five days. This does not destroy the tissue, as in the process of Bottini, but only promotes absorption of the enlarged gland. It is devoid of danger, and may be used even in the earlier stages of the disease. The principle here is somewhat different from electrolysis in strictures. The absorbent action is brought to bear upon glandular instead of cicatricial tissue, and we may reasonably expect a better result than in strictures.

. I may here refer to one other method of the use of galvanism. In my paper before the Alabama Surgical and Gynecological Society, last year, I said:

"Electrolysis by puncturing the gland itself by a suitable galvanic needle has not, so far as I am aware, been tried; but from the well-attested success of this method in other tumors, it would seem worthy of the attention of some bold innovator."

This method has been since then tried by Casper, of Berlin. At a recent meeting of the Berlin Medical Society he reported four cases treated in this manner. The needle was inserted in three points in the gland *per rectum*, and a current of from twelve to fifteen milliampères used for fifteen minutes, the needle being carefully insulated to prevent injury to the other parts. Two were much improved; in one the result was negative, and in the other there was injury from defective insulation of the needle (THE MEDICAL NEWS, June 16, 1888).

Perineal prostatotomy and prostatectomy.—Sir Henry Thompson had practised digital explorations of the bladder through perineal incisions for the removal of tumors of the bladder. This naturally led to perineal prostatotomy and prostatectomy, as by this route either the obstructing bar at the neck of the bladder could be incised, or the intravesical pedunculated outgrowth could be reached and removed with the scissors or the snare.

This was an advance upon the Mercier and Bottini operations, as it enabled the operator, by digital exploration, to make a more certain differentiation of the case; and at the same time relieve by free drainage the cystitis, which is an almost constant accompaniment of these cases.

Dr. Gouley seems to have been the first to recommend this method. In his *Diseases of the Urinary Organs* (1873), after describing the method of perineal incision for the relief of retention, under the head of "Ablation of Median Prostatic Outgrowths" he says:

"the surgeon should then endeavor to give permanent relief by a procedure which will probably not add greatly to the dangers of the preceding step. He should first explore the prostate through the artificial opening, and if he discover a median outgrowth, or isolated tumor, he should dilate the prostatic sinus, or incise the prostate laterally, and enucleate the tumors, or if there be a median outgrowth excise it; but the better plan is to remove it by means of a small wire écraseur."

Dr. Lardiner, of Leipsic, was led by an accidental seizure and removal of a pedunculated middle lobe in operating for stone, to this same method.

"At first the author was vexed with the unintentional interference with the prostate, but when he saw that good effects followed he was led to believe this was the proper treatment of this class of hypertrophied prostates. He afterward repeated the process, confining himself to the forceps in removing the pedunculated enlargements (*Annals of Surgery*, 1887, p. 433).

Reginald Harrison frequently used this method of perineal prostatotomy and prostatectomy, and preferred it to all others. He says:

"so far I have been able to do all I desired in the way of removing more or less of the obstructing prostate by proceeding from the perineum" (*Med. Record*, January, 1888).

Prostatectomy from the perineum has this advantage: It permits a direct digital exploration of the parts, and thus we are enabled to judge definitely whether the obstruction is from a band or bar at the neck of the bladder, an intra-vesical pedunculated outgrowth, or a general enlargement of the gland; and we may incise the first with the bistoury (Thompson and Harrison); the second may be seized with the forceps (Lardiner), or removed with the scissors (Harrison and Thompson), or seized with the galvano-snare (Gouley and Lang); and the third incised with the bistoury, and a drainage tube inserted (Gouley and Harrison).

Suprapubic prostatectomy.—The revival of suprapubic lithotomy, and the safety with which the bladder can be opened by suprapubic incision, suggested this as another method of relief in prostatic troubles. The operation consists in opening the bladder above the pubes in the usual manner and severing by snare, the scissors, or the forceps that part of the enlarged prostate which prevents the outflow of the urine. Dr. McGill has practised this method in three cases with the best result (THE MED. NEWS, December 10, 1887). In the *Med. Record*, September 23, 1888, there is a report of two cases treated by suprapubic incision, in which Dr. Atkinson removed the protruding enlargement by enucleation, after incision of the mucous membrane, having first removed a small pedunculated growth with the scissors.

Dr. Hunter McGuire, at the Congress of American Physicians and Surgeons (Washington, September, 1888), spoke of suprapubic cystotomy for the purpose of removing intravesical outgrowths

of the prostate, and described his method of leaving a permanent fistulous opening above the pubis as a means of keeping the bladder thoroughly emptied. In the case referred to, the patient was not only relieved of the troublesome cystitis, but acquired voluntary control of retention and expulsion of his urine.

Thus it is seen we have a variety of methods for relief. Each of them may have advantages, under certain conditions peculiar to itself, and by a careful differentiation of cases, and a prudent selection of the method suited to each case, we may hope to give relief, more or less permanent, in many cases heretofore abandoned as without hope.

What is now needed is an accurate differentiation of cases, a prudent selection of the process suited to each case, and judicious determination of *the time* when it may be proper to interfere by operative procedures.

Much has already been done in the line of differentiation. Mercier, to whom too much credit cannot be given, made a long stride in the right direction when he emphasized the fact, that to median obstruction, frequently without any serious enlargement of the lateral lobes, was due a large proportion of cases of obstructed urine; and his operation was wisely conceived for relief of this condition. He not only emphasized the existence of median obstruction, but by means of his rectangular, short-headed catheters and sounds, did much in determining the situation, form, and size of other obstructions, thus paving the way to a more accurate differentiation of cases.

The varieties may thus be classified:

(1) *General enlargement:*
  (*a*) Of one lateral lobe.
  (*b*) Of both lateral lobes.
(2) *Median obstruction:*
  (*a*) Sessile tumors.
  (*b*) Bar, or valvule at neck of bladder.
(3) *Intravesical outgrowths:*
  (*a*) Pedunculated outgrowths of median portion.
  (*b*) Prolongation of lateral lobes.

These varieties may occur separately and distinct, or they may be combined one with the other. General enlargement, while it may be the prominent characteristic, may be (and frequently is) accompanied by median obstructions—extra- or intra-vesical—or it may occur without these median complications; while upon the other hand, the median enlargement may be the main or sole trouble.

In the extra-vesical median, sessile enlargement, the submucous tumor is at some little distance from the urethro-vesical orifice and raises the connecting tissue (commissure) of the lateral lobes more obtusely, while in the bar, or valvule, the tumor being located nearer the vesico-urethral os, and from the absence of resistance, raises the mucous fold more acutely and near the neck of the bladder.

The intra-vesical varieties may be a prolongation of the lateral lobes, one or both, into the bladder; or the median portion may protrude into the viscus, as a pedunculated tumor.

For a wise application of the different methods of operation, we should, as near as possible, differentiate between these varieties, so as to select the operation suited to each variety.

(1) We may infer something from the clinical history of the case. If the patient is young (from 54 to 60) with decided obstruction, and no amount of effort will relieve the bladder, we would infer a median enlargement, with valvule at neck of bladder or a pedunculated intra-vesical outgrowth. If the obstruction has been very gradual in its approach, and the patient is still able at advanced age (seventy or more) to empty the bladder after patient effort, we may infer that the enlargement is general. This inference is the more certain if the patient has a stillicidium, or kind of siphonage of the urine, when the bladder becomes distended. This stillicidium is often present when the bladder is over-distended, and the fact of retention is overlooked.

(2) But our main reliance is upon physical examination. This is made per rectum or by the urethra. By careful digital examination, per rectum, we may determine the size, hardness or softness—smoothness or roughness—whether one or both lobes are enlarged, whether the enlargement is general, or whether there is an absence of general enlargement, and hence the inference that the obstruction is median or an intra-vesical outgrowth. If now with the sound or catheter (soft-gum catheter of Benas, with Mercier curve preferred) we find the constriction commences at the apex of the gland, and continues evenly until it enters the bladder; and if in *withdrawing* the catheter we find the *grasping* of the catheter continues steadily until it passes the apex, which it does with a kind of jump, we have full confirmation of the diagnosis of longitudinal or general enlargement.

But, in a general enlargement, there may be complications. In addition to the general enlargement we may have a sessile tumor, valvule, or intra-vesical pedunculated outgrowths, or extensions of the lateral lobes into the bladder. The sessile median enlargement combined with lateral general enlargement, may be detected by the increased resistance to the passage of the catheter or sound as we reach the portion of the urethra just before entering the bladder. This may be noticed either in introducing or withdrawing the catheter. The pedunculated intra-vesical outgrowths, and intra-vesical prolongation of

the lateral lobes whether existing with or without general enlargement, are to be determined by the Mercier rectangular sound, or by Dr. Gouley's cysto-pylometer. This instrument, which is a modification of Mercier's sound, is thus described by Dr. Gouley:

"The beak of the instrument is nearly rectangular and one inch in length. The shaft is in two longitudinal segments—the male segment sliding over the female and being flat at its vesical end to come in contact with the corresponding flat surface on the inner side of the beak of the female segment, and designed to grasp the valvule or bar."

The instrument when closed resembles a metallic sound with a short, rectangular curve. It is introduced closed and when in the bladder the beak is turned gently from right to left, and the reverse—noting carefully any resistance it may encounter. If it meets with firm, unyielding resistance on either side, we may infer intra-vesical enlargement of the lateral lobes; but if the resistance is yielding, and changes its relations to the handle of the instrument, we may infer that we have a pedunculated intra-vesical median outgrowth.

We may with a good degree of certainty distinguish between the sessile median enlargement and the crescentic valvule or bar, with the same instrument. The cysto-pylometer being introduced closed, into the bladder, and drawn outward until the beak rests against the intra-vesical orifice of the urethra, the male blade is carefully withdrawn. The amount of resistance by the median enlargement is estimated fairly well by the resistance met with in withdrawing this blade. After the resistance ceases, the male blade is gently carried toward the bladder again. If it is a sessile median enlargement, the blade will, with a continuous resistance, pass into the bladder; but on the other hand, if it is a valvular bar, the beak will be arrested by it, and the obstruction may be grasped between the beaks of the male and female blades, and its thickness estimated by the amount of separation of the blades, by the scale on the handle of the cysto-pylometer.

Electro-cystoscopic explorations, where the urethra will admit of the introduction of the instrument, may also be brought to our aid, and we may be able with this instrument to differentiate intra-vesical outgrowths of the prostate from intra-mural vesical tumors.

Thus by inquiry into the clinical history of the case, careful digital examination per rectum, exploration of the urethra and bladder by the catheter and the cysto-pylometer, we may gain a fair idea of the character and position of the obstruction. This being determined, we may then select the surgical process suited to the case.

If the obstruction is from a general enlargement of the gland, we may use the Bottini galvano-cautery; or galvano-absorption, as practised by Dr. Robert Newman; or perineal prostatotomy. If, upon the other hand, the examination shows a general enlargement, with intra-vesical outgrowths, we may resort to suprapubic prostatectomy combined with urethral prostatotomy by means of an instrument similar to the urethrotomes used in dividing strictures of the urethra; or perineal prostatotomy as practised by Mr. Harrison. Or in these complicated cases, we may use the method of McGuire, and instead of combining perineal or urethral prostatotomy with supra-pubic prostatectomy, be content with a supra-pubic fistula for the exit of the urine.

But if we determine that we have a median valvule or bar as the obstructing cause, the Mercier operation is plainly indicated. Or if the case is one of intra-vesical outgrowth with but little general enlargement, the supra-pubic operation is the method indicated.

Another factor of success in these cases, is the *time* at which surgical interference should be resorted to. The remark of Mr. Harrison, "that no operation should be thought of so long as the catheter can be introduced," should be modified. When we have at our command methods that may be used with safety in the earlier stages, when the cases are carefully differentiated, and relieve the patient of years of annoyance or suffering, I can see no good reason why we should not use them. And probably in this *timely interference* is where we may expect most in the relief of prostatic troubles. The conservative spirit which has guided our actions to the present, may be in danger of going too far, and leaving undone what might be well done. The early use of the process of Mercier, and the milder one of Newman, are well worthy of consideration upon properly selected cases, and the future will doubtless see them often resorted to before patients are worn out by long suffering, and reduced to the last extremity, when the system is badly prepared for any operation.

The operation of Bottini, too, with well-constructed instruments, would seem to be preferable to a life-long suffering or premature death. This operation, which has not been well received in this country, is better thought of in Italy and Germany. Nussbaum, while condemning almost all other forms of surgical relief, approves the galvano-caustic method of Bottini.

Even perineal and supra-pubic prostatectomy, in this day of improved surgical technique and antisepsis, may well be resorted to in the earlier periods, rather than an apathetic contemplation of a life of suffering, and the gradual and sure approach of a condition, in which, *as a last resort*, these measures are attempted with but little hope of success.

MEDICAL PROGRESS.

Treatment of Acute Coryza.—DR. FRANK HAMILTON POTTER, of Buffalo, recommends the following treatment for this affection:

If the cold comes on toward evening, a hot bath should be taken, followed by the exhibition of $\frac{1}{100}$ to $\frac{1}{80}$ of a grain of sulphate of atropia, and the patient well wrapped up in bed. A word of caution is necessary in regard to the use of the atropia. Some people are very susceptible to its influence, and when given for the first time a much smaller dose must be used—say $\frac{1}{250}$ to $\frac{1}{200}$ of a grain. When found to disagree, a full dose of the sulphate of quinine, about ten grains, may be substituted. During the next day the nose and upper part of throat should be thoroughly washed out with a warm alkaline spray; or, still better, with a douche, by means of the posterior nasal syringe; the turgescence of the nasal tissues contracted by means of cocaine; and, finally, the entire surface covered with a coating of an unirritating oil. The *oleum petrolina* he has found to be the best for this purpose. This should be done about three times in the course of the day. If the cold is first noticed in the morning, the process should be reversed; the local treatment given during the day and the general treatment at night. From experience he was able to report that, by this method, colds that generally last from ten days to two weeks can be limited to about two days. The discomfort after that is so very slight as not to be considered. He does not propose this as an infallible method, but where it fails it will usually be found that there is some intra-nasal chronic disease, or else some constitutional disorder which makes the attack of extraordinary obstinacy.

Lately, Dr. F. Cardone, of Naples, has contended for the parasitic nature of acute coryza, stating that its morbid process is analogous to that of pneumonia. He has found in the secretions the *streptococcus pyogenes*, the *staphylococcus aureus et albus*, and, in still greater numbers, the *diplococcus* of Fränkel and the *pneumococcus* of Friedländer. If he is correct, we can, perhaps, understand the great benefit resulting from the early and continued cleaning of the parts, such as the above treatment advocates. On the other hand, if a cold is caused by the paresis of the nerve-centres governing the vaso-motor phenomena of the upper air-tract, we can also understand how the counter-shock of the hot bath and atropia treatment, together with local depletion, so rapidly subdues the inflammatory action and restores the patient to accustomed health.—*Buffalo Medical and Surgical Journal*, January, 1889.

Employment of Iron in Diseases of Children.—DR. H. GILLET remarks that to the fourth or fifth year, one should guard against the use of medicaments and above all against the use of iron preparations. And yet two of these would form an exception, namely, the protoiodide and the perchloride of iron. The first of these is, properly speaking, not an iron preparation, but rather an iodide, and is used in the treatment of scrofulous affections; the second is used in hemorrhages and in conditions of a generally grave nature, such as typhoid fever, diphtheria, etc.

Iron preparations, to be acceptable to children, must first have a pleasant taste; secondly, not derange the digestive functions; and thirdly, admit of being administered in small bulk. This last condition is easily attained, since the preparations in question act in very small doses.

Thus to a child from eight to ten years, one of the following powders given once a day, will be found to be sufficient:

℞.—Subcarbonate of iron,
Powdered rhubarb,
Sugar flavored with vanilla, } āā 2 grains.
Mix with some preserved fruit.

Iron preparations appear under two forms, soluble and insoluble. The insoluble in the powdered form as: the subcarbonate reduced, and saccharated carbonate of iron, etc., are easily mixed with any disguising substance. Pills being generally refused, they must either be administered in their natural state or in the form of chocolate tablets:

℞.—Reduced iron . . . . . 3 grains.
Chocolate . . . . . ℥x.

Make one tablet—administer during the day a quarter or a half a tablet according to age of child.

The soluble preparations are numerous; those to be preferred are the lactate, the citrate, the chloride, and the tartrate of iron and potassium. The lactate is less irritable to the stomach than the citrate and can be administered in wine or liquor as follows:

℞.—Citrate of iron . . . . . 30 grains.
Malaga wine . . . . . ℥iij.

One teaspoonful once or twice daily.

The perchloride, if it were stable, would have the preference over all other preparations, the syrup containing two grains of the iron, in ℥v of the syrup.

The chloride can be administered alone or as in the following formula:

℞.—Solution of chloride of iron . . ℥iss.
Spirits of ether . . . . ℥iij.

Five to ten drops in sweetened water, to be taken through a tube.

The tartrate of iron and potassium can be administered in various ways:

℞.—Tartrate of iron and potassium
Cinnamon water . . . } āā ℥j.
Simple syrup . . . . . ℥iv.

One to two teaspoonfuls three times daily.

Or,

℞.—Tartrate of iron and potassium . 30 grains.
Syrup of bitter orange-peel . . ℥ij.
Muscatel wine . . . . ℥viij.

A small wine-glassful after each meal.—*Revue Thérapeutique*, December 20, 1888.

The Operative Treatment of Hydrocele.—The last number of Professor Bruns's *Beiträge zur klinische Chirurgie* contains a paper on the "Operative Treatment of Hydrocele and its Ultimate Results," in which DR. HERTZBERG, of Tübingen, endeavors to prove the superiority of incision over injection by a record and analysis of forty-six cases,

in which Volkmann's radical operation was performed. The youngest patient was twelve years of age, and the oldest fifty-six years; in six cases the hydrocele affected both sides of the scrotum. The operation in each case was performed with full attention to antiseptic details. The vaginal cavity was washed out with a weak solution of corrosive sublimate; a drain-tube of medium size was passed through the cavity, and brought out through a counter-opening at the lower part of the scrotum, and the seat of operation and the surrounding parts were finally covered by a dry dressing of wood-wool. Professor Bruns practises partial excision of thickened indurated or superfluous tunica vaginalis, but holds that total excision of this membrane is not required, save in very exceptional cases. Care was taken to relieve the vaginal cavity of all products that were supposed to be associated with the disease, and in a case in which such morbid conditions existed, deposits and growths were removed from the tunica vaginalis, hydatid and other cystic growth from the testis or epididymis.

In thirty-three cases recovery took place without any signs of local or general reaction. In eight cases there was severe general reaction with subjective disorder and prolonged fever. Such conditions which, however, are now but very rarely observed, are the result of interference with primary healing by effusion of blood into the vaginal cavity, of inflammatory œdema of the scrotum, of swelling of the testis, or of suppuration in the perineum or the anterior abdominal wall. In a large majority of the cases collected by Hertzberg the drain-tube and sutures were removed on the fifth or sixth day, and the patient was able to leave his bed at the end of the first, or the beginning of the second week.

The average duration of the stay in hospital was a little over sixteen days. In this respect Volkmann's operation seems at first sight to compare unfavorably with injection of iodine. The usual duration of hospital treatment by the latter method is from eight to ten days, but, it is pointed out, injection is very often followed by tenderness and swelling of the scrotum and effusion into the vaginal cavity, which may last for weeks, and even for months.

All the patients treated by incision and drainage at Tübingen were discharged as cured, and the primary results were all very favorable. By subsequent inquiry and observation Hertzberg has made out that the benefits derived from the treatment have been maintained, and that forty-five out of forty-seven hydroceles treated by cutting operation have been permanently cured. By comparing tables, derived from different sources, of carefully recorded and long-observed cases of hydrocele treated by incision and injection, he finds that the relapses after the former treatment constitute from three to four per cent. of the total number of cases, whilst those after treatment by puncture and injection of iodine amount to eight per cent. In conclusion, Hertzberg expresses it as his opinion that incision is the most rational method of treating hydrocele, especially with regard to the certainty of obtaining a permanent cure, and that in future it will be more frequently practised, as the appreciation of the value of antiseptic surgery becomes more widely spread.—*London Medical Recorder*, Dec. 20, 1888.

Oil of Turpentine in Epistaxis.—Dr. Ernyei (*Pester Presse*, No. 14) treated a severe case of bleeding from the nose, which had resisted treatment with ice, ergotine, digitalis, etc., with tampons saturated with oil of turpentine, and had the satisfaction of stopping in a few minutes an epistaxis which had lasted eight days.—*Deutsche med. Wochenschrift*, December 13, 1888.

Cocaine in the Treatment of Whooping-cough.—To diminish the violence of whooping-cough, painting the pharynx and tonsils four times daily with the following mixture is recommended:

Chlorhydrate of cocaine . .	grs. xv.
Water	℥ v.

—*Journal de Médecine*, December 16, 1888.

Three Cases of Railway Shock.—At a recent meeting of the Vienna "Medizinisches Doctoren-Collegium," Prof. Benedikt brought forward three patients who had suffered from different degrees of the so-called railway shock. The first of these patients, immediately after the accident, presented severe nervous symptoms, such as headache, giddiness, sickness, impaired mental faculties, etc. The two other patients became attacked with the nervous disturbances some time after the shock; one of them suffered from headache and giddiness, which hindered him from doing his regular work. It was not until three years later that his field of vision became impaired, first only for colors, and later on also for white light. At a later stage, examination with the ophthalmoscope proved the presence of neuro-retinitis. In the case of the third patient, a number of severe nervous symptoms supervened some time after the shock. The speech of the patient was scarcely intelligible, though the tongue was not paralyzed; but his faculties of recollection were impaired. Paraparesis with simultaneous augmentation of the reflexes came on, viz., ataxia hemilateralis, which was characterized by the fact that the patient invariably fell toward the right side when he shut his eyes. Prof. Benedikt remarked that in the recent cases of railway shock a number of subcutaneous injections with a two per cent. solution of carbolic acid, the application of the electrostatic method as well as a number of *points de feu*, could remove the nervous disturbances under consideration, and prevent those severe symptoms which were to be observed in the two last-mentioned patients.—*Medical Press*, December 19, 1888.

Treatment of Diarrhœas.—DR. RABOW states that lactic acid and talc, two of the best remedies for diarrhœas, are highly recommended by two well-known French physicians.

Lactic acid was first used with success by DR. HAYEM in the green diarrhœas of infants; the little patients receiving, every fifteen minutes, a teaspoonful of a two per cent. watery solution of this preparation. Later on Dr. Hayem tried the same remedy in the obstinate chronic diarrhœas of the adult, to whom he administered with the best results, three times daily, a tablespoonful of the following mixture:

℞.—Lactic acid	grs. xxx.
Water	℥ iij.
Simple syrup	℥ v.—M.

DR. SEVESTRE also administered a teaspoonful of this preparation, five or six times daily, without observing the slightest unfavorable symptoms. In the so-called bilious diarrhœa, lactic acid was found useless, only large doses

of bicarbonate of sodium acting effectively. Later on DRS. SÉZARY and AUNE tried the remedy in the diarrhœa of tuberculosis, administering thirty grains of the acid to a four ounce mixture, and if this did not prove active enough, ninety and one hundred and twenty grains to a four ounce mixture. This quantity was taken in tablespoonful doses within twenty-four hours. The evacuations were diminished in frequency, and became normal on the fourth day.

Another remedy has been recently recommended by DR. DEBOVE, namely, magnesium silicate, also known by the name of talc.

This preparation was given in large doses, producing the most favorable results, especially in the diarrhœa of tuberculosis.

Another valuable remedy is the acorn-cocoa as prepared by DR. MICHAELIS. Added to milk it forms a valuable nutriment, overcoming the diarrhœa of malassimilation. In the chronic diarrhœa of adults and children it must be mixed with water *only*.

In acute diarrhœas, cardamom seeds, a remedy which can be found in almost every household, have been used with advantage. Children as well as adults may chew the contents of one or two capsules.—*Therapeutische Monatshefte*, December, 1888.

The Cause of Death in Acute Pneumonia.—LIEBERMEISTER, in the course of a paper on a series of cases of acute croupous pneumonia, has expressed the view that death is generally due to pulmonary œdema of the non-infiltrated portions of the organ; this œdema he attributes to cardiac failure. The fever, he says, tends to produce degeneration of the heart muscle and functional insufficiency, while the heart has to act against an increased resistance, due to compression of the bloodvessels by the infiltrated lung; the right heart, acting under these unfavorable circumstances, fails, and the first symptom of its failure is the pulmonary œdema above mentioned. —*British Medical Journal*, December 29, 1888.

Cardiac Cyanosis.— DR. A. FALLOT publishes in the *Marseille Médicale* the results of his exhaustive researches upon cardiac cyanosis, from which the following conclusions are deduced:

1st. Clinicians have up to this date considered the precise diagnosis of the anatomical lesions of cyanosis an impossibility. From observations gathered he found that cyanosis in the adult is the result of a number of small cardiac malformations.

2d. Amongst these cardiac malformations is one which in frequency surpasses all others, it having been found in no less than seventy-four per cent. of our cases; this is the one which the clinician should diagnosticate, and having done so, his chances of future errors will be limited.

3d. This malformation constitutes a true anatomical pathological type represented by the following four conditions: 1st. Narrowing of the pulmonary artery. 2d. Interventricular communication. 3d. Deviation of the orgin of the aorta to the right. 4th. Hypertrophy, nearly always concentric, of the right ventricle.

4th. To attribute cardiac cyanosis to the persistence of the foramen ovale, would be in open opposition to the immense majority of facts observed; the communication of two small foramina, existing alone, without any other cardiac lesion, does not produce cyanosis.—*Revue de Thérapeutique*, December 15, 1888.

Convenient Formulas for the Administration of Creasote.— DR. KEFERSTEIN (*Th. Mtsch.*, 1888, No. 9) gives some very good formulas for the administration of creasote. The one at first recommended by Dr. Bouchardat, and later on by Dr. Fräntzel, has been modified by the author, as follows:

℞.—Creasote . . . . . gr. xx.
Alcohol . . . . . ʒvj.
Cinnamon water . . . . ℥iij.
Cinnamon syrup . . . . ʒvj.—M.
One teaspoonful three times daily.

For the pill-form the following is recommended:

℞.—Creasote . . . . . gr. lx.
Powdered marshmallow root }
Purified liquorice . . } āā ʒjss.
Mucilage of gum arabic . . q. s.—M.
Div. pill. No. cxx. Coat with gelatine.
Sig.—One pill three times daily.

In irritative cough and diarrhœa the following is administered:

℞.—Creasote . . . . . gr. xxx.
Acetate of lead }
Opium (pure) } . . . āā gr. v.
Extract of liquorice . . . ʒjss.
Mucilage of gum arabic . . . q. s.—M.
Div. pill. No. 50.
Sig.—One pill three times daily

For children, creasote in the form of the following emulsion seems best adapted:

℞.—Creasote . . . . . gr. xx.
Dissolve in
Almond oil . . . . . ℥j.
Gum arabic . . . . . ʒv.
Water . . . . . ℥iij.—M.
Make an emulsion, and add,
Compound tincture of orange peel gtt. xv.
Oil sugar of peppermint . . ʒj.—M.
One teaspoonful two to five times daily.

For drop doses the author uses the following:

℞.—Creasote . . . . . gr. xlv.
Tincture of cinnamon . . . ℥j.—M.
Fifty drops, three times daily, in half a cup of warmed milk or warmed sweetened water, or Malaga wine, etc.—*Deutsche med. Wochenschrift*, December 20, 1888.

Tuberculosis a Specific Infectious Disease.—An interesting proof of the widespread acceptance of the view of the nature of tuberculosis first forcibly maintained by Villemin, and recently so strongly confirmed by Dr. Koch's discovery of a specific bacillus, is afforded by the fact that in the new edition of Fagge's *Medicine*, Dr. Pye-Smith has classified tuberculosis among "specific infectious diseases," between syphilis and pneumonia. One consequence of this general acceptance has been the growth of a more hopeful feeling with regard to the prognosis of tuberculosis.

Kurlow has conducted some experiments which have a direct bearing on the solution of this question. It is

well known that it is by no means uncommon to find *post-mortem* evidence of cured tuberculosis of the lungs. Twenty-six cases of apical affections of the lungs found at the necropsies of persons dying of some affections other than tuberculosis were tested with the following results: 1. Inoculations made with material obtained from three simple cirrhotic patches in the apices gave negative results. 2. Inoculations made with material obtained from four cirrhotic patches infiltrated with calcareous matter were likewise negative. 3. Inoculations made with material obtained from twelve capsulated caseous patches on twenty-six animals resulted in the development of tuberculosis in twenty of the animals. The experimental results show that in twenty-six suspected cases of tuberculosis of the pulmonary apices, seven only, twenty-seven per cent., were non-infectious.

Bollinger, in common with other observers has found that the milk of cows suffering from local or general tuberculosis may be infectious, but that the infective power is very greatly diminished by dilution. The meat that is to say the muscles, of tubercular cows was not, according to his experiments, infective.—*British Medical Journal*, December 29, 1888.

Pyrodin.[1]—DR. OSKAR LIEBREICH gives the following *résumé* of Dr. Dreschfeld's researches into the action of pyrodin:

1. Pyrodin is a powerful antipyretic.

2. It lowers the temperature very rapidly, the same remaining low for several hours.

3. It is easily administered. It incites skin activity, but no nausea, vomiting, or collapse.

4. Its beneficial action is especially well demonstrated in pneumonia, scarlet fever, and petechial typhus.

5. It is less beneficial in typhoid fever.

6. It acts favorably in migraine and neuralgia, though the number of observations made thus far do not admit of any positive assertion.

7. It should only be administered once in eighteen or twenty-four hours, and only for a few days at a time.

8. It has acted in cases in which other antipyretics failed.

9. The dose for children is from two to four grains; for adults, from eight to fifteen grains.

10. In its action it is more powerful than antipyrin, and antifebrin, being at the same time more toxic than these preparations. This last disadvantage is overcome by the fact that it need not be given more than once in eighteen or twenty-four hours, as its antipyretic effects last longer than those of any other preparation.[2]

11. It lowers the pulse as well as the temperature, and frequently produces diuresis.—*Therapeutische Monatshefte*, December, 1888.

The Lancet, of December 29, 1888, has the following: "Great caution, however, is required in its administration, as it is apt to produce jaundice, followed by anæmia, and even more serious symptoms due to hæmoglobinæmia. Small doses only should be given, and at sufficiently long intervals to enable one to watch any toxic effects."

[1] Pyrodin contains as its active agent *acetylphenylhydrazin* ($C_6H_5N_2H_1C_2H_3O$) a crystalline powder, very sparingly soluble in water.

[2] Later investigations have led Dr. Dreschfeld to conclude that the toxic effects of pyrodin must be well guarded against.

Treatment of Facial Eczema in Children.—DR. E. BESNIER distinguishes three distinct varieties of infantile facial eczema: eczema of lymphatic or scrofulous origin, pruriginous eczema of dentition, and desquamative eczema.

I. *Scrofulo-tuberculous eczema.*—This is treated with lotions of a teaspoonful of Van Swieten's liquor[1] to a bowl of warm water, gradually increasing the quantity of the mercurial liquid. The lotions to be followed by the application of the following ointment:

℞.—Vaseline	℥j.
Calomel	15 grains.

Which in turn is replaced by the following:

℞.—Vaseline	℥ij.
Red precipitate	1 grain.

II. *Eczema of dentition.*—The dental irritation should be overcome by painting the gums with the following solution:

℞.—Cocaine	1 grain.
Bromide of potassium	8 grains.
Water. Glycerine āā	℥iss.

If necessary some bromide of potassium can be administered internally. After this the following ointment should be applied to the gums:

℞.—Oxide of zinc	℥iss.
Vaseline	℥iv.—M.

III. *Pruriginous eczema.*—Should the eczema attack the scalp, the hair should be cut short and the scalp cleansed thoroughly with soap-lotions. In facial eczema the crusts should be softened with warm milk and water, and then the following ointment applied:

℞.—Resorcin	8 grains.
Oxide of zinc	℥iss.
Vaseline	℥iss.

Or,

℞.—Powdered sulphur	℥iss.
Oxide of zinc	℥iij.
Vaseline	℥iij

—*Revue Thérapeutique.*

Naphthol in the Treatment of Itch.—DR. KAPOSI recommends the following formula:

℞.—Naphthol	gr. l.
Green soap	℥vj.
Prepared chalk	℥jss.
Lard	℥j ℥ij.—M.

Apply once a day.

The substitution of lanoline for lard will admit of deeper penetration of the ointment.—*Revue de Thérapeutique*, December 27, 1888.

Sublimate Solutions in Cystitis.—DR. LINDÉN (*Finska läkaresällskapets handl.*, No. 29) recommends injections of sublimate solutions 1 : 75,000 to 1 : 50,000 in cystitis.—*Deutsche med. Wochenschrift*, December 20, 1888.

[1] The formula for Van Swieten's liquor is as follows:

℞.—Bichloride of mercury	5 grains.
Water	℥j.
Alcohol (80 per cent.)	℥j.

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THE REPOSITION AND PRESERVATION OF BONE-GRAFTS.

As is well known, after removal of portions of the skull by trephining or otherwise in time the gap will become occluded by a laminated fibrous substance, whilst those portions of the membrane which are near to the edges of the opening, after the lapse of several months, and more especially in the young, will frequently be found more or less ossified. This membrane is usually ample protection for the cranial contents if the amount of bone removed is not large; but after exsecting so great an area as is sometimes necessary for purposes of exploration or removal of growths or of shattered or depressed fragments, the simple fibrous wall does not afford sufficient protection.

To obviate this, as long ago as 1868 Ollier recommended what he termed "subperiosteal" trephining—that is, the preliminary raising of the periosteum and its careful reposition after removal of the disk or fragments, and thus he was enabled frequently to secure bony occlusion of the trephine opening. Shortly afterward he further proposed the now revived procedure of replacing the entire button or fragments, but after experimenting several times and, in the absence of antiseptics, lamentably failing, he was led to condemn the measure.

Three years ago Macewen, at the time of performing some of his wonderful brain operations, was led to repeat Ollier's experiments, and, with the aid of antisepsis, was as brilliantly successful as Ollier had been unfortunate. He operated by the subperiosteal method, broke the disks into small grafts and planted them upon the dura mater, and then replaced the pericranium. A year later Horsley recommended that the button or other fragments be replaced entire, regardless as to what their size might be. These are now recognized procedures in many cases, but the query arises as to what are the conditions under which replacement, partial or entire, is indicated.

Reposition is indicated where the amount of bone removed is large and in which the wound can subsequently be kept aseptic. Where purulent drainage is expected, either the grafts should not be replaced, or we should be prepared again to remove them upon the first sign of trouble indicating that they had perished and become dangerous foreign bodies in the wound. Buttons or grafts from such palpably septic operations as those upon suppurating mastoid cells or abscesses resultant therefrom should never under any circumstances be replaced.

Again, the mode of replacement of the graft is of importance, for the exact replacement of a tightly fitting graft will effectually prevent drainage, which latter, when indicated, is as important in brain as in abdominal surgery. Therefore, if the button be in one piece it must be notched or broken before replacement, that an ample exit for the catgut or rubber drain may be provided.

The means of preserving grafts from the time when removed until wanted for replacement is another question of great importance. This has hitherto been more or less effectually accomplished by placing them in hot antiseptic solutions, but we have gained best results by simply wrapping the fragments in a few layers of moist aseptic gauze, and placing the whole in a covered dish until wanted. This method could be improved upon by having the fragments wrapped as above and deposited in a jar, dish, or saucer floating upon water maintained at a temperature of 100°–110° in a covered vessel. The proposal of Dr. Dercum, of this city, to place the grafts in sterilized blood serum kept at 100° is logical, but presents great practical difficulties, and could not yield better results than does the above-described method. On the other hand, it is not wise to preserve them in simple boiled water, nor in antiseptic solution, because of the devitalizing effects of those agents. What we require is simply asepsis, warmth, and moisture, and under these conditions the bony fragments will more than retain their vitality until the termination of even the most prolonged operation.

When the grafts are themselves septic—as in compound fractures—but the conditions indicating replacement are present, then, to insure asepsis, the risk of immersion in antiseptic solution must be taken, or clean fragments must be procured from a lower animal or elsewhere and used in their stead.

Our remarks apply equally to all grafts, whether taken from other situations or from animals.

THE APPLICATION OF EXTENSION IN POTT'S DISEASE AND VERTEBRAL INJURIES.

AT the clinic of the University Hospital, on Friday last, Dr. H. C. Wood showed and explained a method of treatment applicable to cases of Pott's disease and to fractures of the spinal column, which he believed to be novel, and which may, upon further trial, prove of great practical importance. Dr. Wood called the attention of the class to the fact that many years ago Prof. J. K. Mitchell treated the cases of Pott's disease by swinging from the head, and that the ordinary treatment by means of the plaster-jacket was an attempt to carry out the indication of extension of the vertebral column. The spinal-jacket, however, as ordinarily placed, fails to produce any continual increase of extension; it simply saves that which has been gained during the few minutes' suspension of the patient. The difficulty with Prof. Mitchell's plan of treatment lies in the fact that very few persons can be found whose strength of neck and lack of general sensitiveness will allow them to be even partially suspended by the head for any length of time; and yet it is claimed that recently in the Orthopædic Hospital great good has been achieved in certain cases by a return to the old treatment with the J. K. Mitchell chair.

Dr. Wood stated that it had occurred to him that the spinal-jacket might be used for the purpose of extension. The chest of a well-shaped man is an inverted cone, and any upward strain upon the jacket would naturally be received, not upon any one point, but upon numerous points upon the surface of the wall.

Dr. Wood, therefore, had a jacket made with loops, from which the patient could be suspended. The making of the loops is very simple: after the first layer of the jacket is put on, a strong linen bandage is placed at the lateral lower edge anteriorly, and then carried directly up, loosely, over the shoulders, and down again to a similar position on the posterior edge of the jacket. The bandage is then reversed, and carried upward and forward and returned until three or four turns of the bandage are loose over the shoulders. The same is done down the other side of the jacket, and then the exterior layers of the jacket are put around the two bandages, up to the top of the jacket. When the whole mass is hardened the linen bandages are so thoroughly incorporated with the jacket that they cannot be pulled out, except by the destruction of the jacket; and above the shoulders they afford a loop to which can be attached a cord or any other device for the purpose of suspension.

At the trial in the clinic, a man with Pott's disease in the lower dorsal region, upon whom the jacket had been placed, was partially suspended in a sitting position. The force of extension, as accurately measured, was seventy-five pounds, and was steadily maintained for four hours without interference with the circulation, without straining the arms, or in any way causing suffering. At the end of the time the patient said he felt more comfortable than before he had been swung.

Dr. Wood also suggested the use of the method in fractures of the spinal column, stating that not only could the patient be suspended for hours, but by securing the loop in the jacket to the head of the bed, and raising the latter at an angle, the weight of the lower segments of the patient's body could be used to extend the spinal column, even during sleep. The force of the extension, of course, could be varied according to the necessities of the case, by lowering or lifting the head of the body. In putting on the jacket a coating of cotton batting should be put between it and the undershirt of the patient.

Since the clinic the case of Pott's disease has been daily suspended for some hours; and he now affirms that not only is he more comfortable in the jacket, but he is now able to move much more freely his left leg, which had been almost completely paralyzed; he can, indeed, lying in bed raise it up and cross it over its fellow.

If future experience should confirm the use of the plaster-jacket, it is evident that by means of a little ingenuity with the wheel-crutch and baby-jumpers much can be gained in the treatment of vertebral caries and vertebral traumatisms.

DR. GEORGE A. BODAMER, of the German Hospital, of Philadelphia, presented on Monday evening, before the German Medical Society of Philadelphia, a case of a young man suffering from a swelling of

the right side of the head and neck, with necrosis of bone, and demonstrated in the discharge from a fistulous opening in the temporal region the presence in enormous quantities of the radiating fungus known as actinomyces. Dr. Bodamer diagnosed the case as one of actinomycosis, and stated that, as far as he knew, it was the first case on record in this country. The details of the case he will publish later. A demonstration of the case was made at Dr. Deaver's clinic at the German Hospital, and the observation was corroborated by Dr. Formad in his morbid anatomy demonstration at the University of Pennsylvania on the following day.

The College and Clinical Record, in its current issue, excuses itself for copying, without credit, an article from our columns and publishing it three months afterward as an *original* article of its own, on the ground that the paper, having been read before a society, was not the exclusive property of any periodical. The article in question was published exclusively in our columns under arrangement with its author, who was duly paid for it, and our ownership of it is fully protected by copyright. Even if this were not so, our contemporary was scarcely more just to its own readers, in giving them as "original" an article which had been published in another journal three months before, than it was to us in copying the article from us without any acknowledgment of the source from which it was taken.

DR. A. L. LOOMIS has been elected President of the New York Academy of Medicine.

THE Chair of Materia Medica and Therapeutics at the Niagara University has been filled by the appointment of Dr. Albert E. Persons, of Buffalo. This is the Chair recently made vacant by the decease of that brilliant young teacher and author, Dr. Frederick R. Campbell.

M. PASTEUR has resigned the Secretaryship of the Académie des Sciences on account of ill-health.

THE Royal College of Surgeons of England, by a vote of 21 to 2, has passed a resolution, censuring Sir Morell Mackenzie for publishing his work on the case of the late Emperor Frederick.

DR. VON LAUER, Physician-in-chief to the German Army and physician to the late Emperor William, celebrated, on December 18, 1888, his sixtieth year of service in the army. Congratulations were received from the Imperial family, the ministers, the faculties of all the medical colleges, the army medical staff, and many others. On December 14th a dinner and festival were given by the students of the Frederic-William Institute in honor of the occasion. Dr. von Lauer is now in his eightieth year.

WITH the new year the Sacramento *Medical Times* changes its name to the *Occidental Medical Times*.

REVIEWS.

THE EAR AND ITS DISEASES: BEING A PRACTICAL CONTRIBUTION TO THE STUDY OF OTOLOGY. By SAMUEL SEXTON, M.D., Aural Surgeon to the New York Eye and Ear Infirmary; Fellow of the American Otological Society, etc. Edited by CHRISTOPHER J. COLLES, M.D., Assistant Aural Surgeon to the New York Eye and Ear Infirmary. With Numerous Original Illustrations. 8vo. pp. 401. New York: Wm. Wood & Co., 1888.

THE author has not attempted to present to the profession a treatise on the ear embracing the entire field of otology. In the labor of collecting and condensing his clinical notes of more than ten thousand cases, the author has been ably helped by his assistants in the Infirmary, Drs. Wm. A. Bartlett, Robert Barclay, and Christopher J. Colles.

In studying the functions and diseases of the ear, the author has aimed to avoid a too exclusive consideration of local conditions in the ear, as he holds that otology "in its broadest sense should embrace a consideration of the upper air tract, of which the middle ear forms but a part, and of regions contiguous to the ear."

The term "chronic catarrh" as applied generally to certain morbid processes in the ear, is not always used by the author, in speaking of diseases usually called by that name, because he does not believe that in every instance this term is fully descriptive of the conditions present.

The following topics have received very justly prominent consideration, viz., catarrh of the upper air tract; oral irritation, especially dentition in its effects on the ear; sea-bathing as causative of ear disease; wounds and injuries of the ear; rupture of the drum-membrane from boxing the ears, and its medico-legal aspects; and concussion from explosions and the discharge of heavy artillery. We also find that amomalies of audition, noises in the head or ears, and their connection with the hallucinations of the insane, have received careful attention in this work, as well as the effects of false hearing in singers, actors, lecturers, and musicians. Othæmatoma occurring among lunatics, pugilists, and others has been presented very fully, and will be of interest to scientists and examiners in lunacy.

The operation of excision of the membrana tympani and ossicles, for otorrhæa and for deafness due to chronic catarrh of the middle ear, receives elaborate attention; and the results of the author's experience with this valuable operation are given. We are informed that these

results have been satisfactory, and it is hoped that its usefulness will be confirmed by the experience of others. We feel that this operation, mainly through Dr. Sexton's efforts, has already become a valuable addition to the means the aurist can command for relieving his patients.

Other subjects which have received due attention in this work are: the classification and education of school children with defective hearing; the effect of high atmospheric pressure on the ear in tunnels, caissons, and in diving; and the condition of soldiers, sailors, and marines seeking pensions on account of disability from deafness. Dr. Sexton has given to the profession a most interesting and valuable guide in the field of otology, which, from the perusal of this book, we are forced to conclude has become a wide one.

SOCIETY PROCEEDINGS.

THE GYNECOLOGICAL SOCIETY OF CHICAGO.

Stated Meeting, November 16, 1888.

THE PRESIDENT, CHARLES T. PARKES, M.D., IN THE CHAIR.

DR. A. REEVES JACKSON read a paper on

SOME UNCURED CASES OF UTERINE HEMORRHAGE.

CASE I.—Mrs. F. W. first consulted him July 7, 1884. She was twenty-eight years old, and had been married two and a half years; no pregnancy. Menstruation commenced at the age of sixteen, and had always been regular and in every way normal down to the time of marriage. After that event, a period occurred at proper time. The patient then missed two periods. After lifting a heavy weight, a flow of blood appeared and continued for several weeks. She visited Dr. Goodell, of Philadelphia, who curetted the uterus in May, 1883. He did not know what, or whether anything, was removed, but the patient considered herself well for four months. In the following autumn, two periods were again missed. After a trifling misstep a red flow began, and continued about one-half of the time for nine months; then he saw her. She was a large but not tall woman, weighing one hundred and sixty-two pounds, of dark and rather dull complexion, and habitually despondent temperament. There was no history or present evidences of disease of important thoracic or abdominal organs. The pelvic viscera were found to be entirely normal in size and position. The os uteri was rather small, but of virginal shape, and free from redness or erosion.

On July 9th he administered ether, and curetted the uterine cavity. A few fungous granulations were removed, and an application made of Churchill's iodine solution. This latter was repeated every four to seven days. For about three months menstruation appeared at intervals of four or five weeks, rather profusely, and lasting from seven to ten days. Then the interhemorrhagic periods became shorter—about three weeks. During the spring of 1885, the intervals were about two weeks; once, only nine days intervened. In the early part of 1886, the flow was more irregular, recurring every three to six weeks. In July, however, it appeared after an interval of two weeks, and lasted three weeks, not profusely but constantly. In August following, he again used the curette, without any result. Nothing was removed, and no change was produced in the symptoms. In June, 1887, the same operation was followed by a like negative result. A month later his connection with the case ceased.

During the time of his attendance (which was not continuous, but interrupted sometimes for periods of several months) the treatment consisted in efforts to overcome habitual constipation, and the intra-uterine application of iodine, carbolic acid, a solution of ferric alum, etc, These applications were always preceded by the introduction of a No. 12 bougie. There were two unfavorable conditions present in this case which he could not obviate. The one was tight-waist dressing, and the other an insuperable objection to active exercise. Within the past few days the husband of this patient called upon him and stated that the subsequent history of his wife presented no material change; that, at times, she seemed better, and then became worse again. She is now under the care of another physician, and is thought to be improving.

CASE II.—Mrs. E. D. placed herself under his care January 22, 1885. She had been married three years, and was never pregnant. Menstruation began at twelve, had never been distinctly regular, and for many years was rather scanty. During the past year, however, the discharge had recurred with greater frequency than ever before, the interval being less than four weeks, and it had become shorter and shorter, while, at the same time, the quantity of discharge at each period had steadily increased. During the month immediately preceding his first interview with the patient there had been three attacks of flowing.

This patient was of medium height, and much too stout to be termed plump. She had very dark and abundant hair, and there was a marked growth of hair upon her upper lip, on her face from the temporal regions to the chin, and on her neck. Interrogation failed to elicit any evidence whatever of cardiac, pulmonary, hepatic, or renal disorder. The patient ate well, slept well, and felt well. She was only annoyed by the frequency of the bloody flow. A pelvic examination revealed no abnormal condition, position, or shape of any of the organs. The single disordered symptoms discoverable consisted in a discharge of dark blood which was seen slowly oozing from the os uteri. The introduction of the sound was easily accomplished, and was followed by a rather profuse flow of redder blood.

Two days later, under ether anæsthesia, the cervical canal was moderately dilated, and the interior of the uterus curetted. A small number of fungosities were removed and the uterine cavity swabbed with Churchill's iodine solution. On February 20th, a bloody discharge appeared, and continued more or less profusely until March 14th—three weeks. He then made an application of Monsel's solution of iron. The discharge ceased for two days; it then reappeared and lasted to March 23d—seven days. He again dilated the cervical canal and passed in a curette, without removing anything, and applied the iodine solution. There was no discharge for eight days subsequently. Then a flow which seemed like that of menstruation appeared. It lasted five days, ceased two days, reappeared and continued with occasional intervals of one or two days until April 23d, when

it became profuse and seemed like menstruation again. After a few days the flow diminished, but a reddish-tinged oozing continued until a more profuse flow indicated the return of catamenial discharge. On November 9th, the patient reported that the longest time she had been free from bloody discharge was four days.

During all that time, he had availed himself of frequent opportunities of making local applications of iodine, carbolic acid, Monsel's solution, alum, fused nitrate of silver, etc. Also, he had given quinine, ergot, and viburnum, and on several occasions he had gently dilated the cervical canal, and tried to get away something with the dull curette.

No especial change was noticed in the symptoms in the summer of 1886, during which time all treatment was suspended. In January, 1887, the patient informed him that once only she was free from hemorrhage for a period of three weeks. Treatment was then resumed. He introduced a tupelo tent and followed the dilatation by a very thorough application of iodized phenol. This was repeated at intervals of five to seven days for several weeks. There was no improvement. Then, he tried nitrate of silver for a while, but the hemorrhage continued. In the summer of 1887, the patient went to Europe with her husband, and for a few weeks while there she was somewhat better. In the following autumn, however, after her return, the hemorrhage was as constant as before. On December 23d, he dilated the uterine canal mechanically under anæsthesia, and removed two large granulations. She died one week later of peritonitis.

CASE III.—Mrs. W. L., aged thirty-five years, had been married seven years, and had two children, the younger being sixteen months old. He saw her on September 5, 1885. When the baby was ten months old, menstruation appeared, and for two periods was quite normal, lasting four days. The third came a week too soon and lasted two weeks. After an interval of two weeks it again appeared, and when it had persisted ten days, necessitating two or more napkins daily, she applied for relief. She then showed effects of the loss in pallor, impaired strength, and enfeebled digestion. The baby was weaned, and the patient took strychnia, quinine, and arsenic. He found no pelvic cause for the hemorrhage unless it might have been a slight degree of subinvolution.

The uterus was freely movable, in normal position, free from erosion, and there was no swelling or undue tenderness in the region of the ovaries, tubes, or broad ligaments. Constipation was present, and he prescribed salines and a regulated nutritious diet. Subsequently, the hemorrhage continuing more or less constantly, although not profusely, other means were tried, many of them rather empirically. They included ergot, hydrastis, viburnum—all without perceptible effect. Then he dilated the cervical canal and explored the interior of the uterus with finger and curette. Nothing was found.

After about eight months, the patient placed herself under the care of an electrician, who treated her for nearly six months. Then she went to Cincinnati, and remained several months under the care of a distinguished gynecologist. She returned to him in January last, and stated that she had not at any time been more than ten days without a bloody discharge, and rarely more than three days. The menstrual periods were distinguishable by the more profuse flow which marked their presence, and they were fairly regular.

Once more he dilated the cervix under etherization, and drew a curette over every part of the intra-uterine surface, taking especial care to get the instrument into the cornual depressions. No tissue was brought away, and very little blood. He subsequently made internal applications of tinct. iodine, tannin, Monsel's solution, and once, at the close of what seemed to be a menstrual period, he applied nitric acid. While, at times, there was a diminution of the discharge, the improvement was only temporary, and in July last she again passed from his care.

CASE IV.—M. M., a single woman, aged twenty-five years, was born in Canada. Menstruation commenced at twelve, and was quite regular until she was nineteen; then the flow became prolonged, lasting sometimes five or six weeks. This was followed by irregularity, both in quantity and times of recurrence for a few months, when menorrhagia again appeared. At the age of twenty-two she was examined by a physician at Ottawa, who curetted the uterus, with what immediate result is not known, but the patient was free from all sanguineous discharge during a period of three months. Menstruation then returned and was regular, and in every respect normal for the following four months. Becoming menorrhagic again the curetting was repeated, with the same temporarily beneficial results as before. Again, after a few months, the flow became profuse, and a third curetting was made six months after the second, the latter time without apparent benefit.

The patient removed to Chicago, and came under the care of Dr. Stowell, with whom he saw her in the early part of the current year. On January 21st, after thorough dilatation of the uterine canal, he curetted very carefully, removing a small number of granulations. The operation was followed by the application of Churchill's iodine. For two months subsequently there was no bloody discharge. Then it reappeared, and Dr. Stowell has continued to treat the symptom in a routine manner locally and generally, but without satisfactory result. Latterly this case presents a curious feature: the flow is very profuse every alternate month, and normal the other.

Within the past fortnight this patient has been placed under the use of electricity, in the hope that she may be benefited by that remedy.

It will be observed that in the foregoing cases there were some features common to them all. Thus, in none of them did the hemorrhage take the form of rapid, profuse flow suddenly exhausting the patient, as we not infrequently notice in cases in which the discharge depends upon an abortion, or upon the presence of cancer or fibroid neoplasm. On the contrary, the evil effects produced were the result rather of the persistence of the discharge covering long periods of time. Again, in none of them was there evidence of disease of the lungs, heart, liver, kidneys, or other important organs causing a depraved condition of the blood or pelvic plethora. In none of them was there a history of hematocele, pelvic inflammation, or detectable pelvic swelling. In none of them was there any displacement or flexion of the uterus, or dislocation of the ovary. Indeed, in none of them could he determine a sufficient local or systemic cause. He had thought that possibly some such cause might

exist in disordered condition of the Fallopian tubes or pelvic cellular tissue not ascertainable by our present known methods of investigation.

Being aware of the influence of malarial poison in producing congestion of the abdominal and pelvic viscera, including perhaps the mucous membranes, he had not failed to take this possible etiological factor into consideration, and to make careful inquiry with the view of ascertaining its existence. The result in each case was wholly negative.

His object in reporting these cases was twofold: first, to ascertain whether others beside himself have met with similar baffling experiences; and, secondly, to obtain such practical hints in the treatment of such cases as may hereafter lessen the number in which we have to acknowledge defeat.

DR. D. T. NELSON thought that the only way we can arrive at a conclusion as to the nature of the disease, and, consequently, the proper method of treatment, is to follow them longer. One case that he had seen—and there is but one that seems to him at all like those reported—he was fortunate enough to see one or two years after a somewhat similar experience by other gentlemen, in which nothing was reported to have been found; in which there was curetting; but as he saw it subsequently there was plain evidence of fibroid tumor. Perhaps if these cases were seen longer or examined post mortem there would be a satisfactory explanation of the persistence of the hemorrhage. He thought that one of the small single or multiple fibroid tumors, which cannot be detected by the most skilful finger, or by any means of examination that we have at present, are likely to produce such results, and he believed that they may lie dormant for a longer period than these cases have been observed; he was quite sure that he had seen them—and eventually, perhaps of their own nature, develop so as to be found; perhaps from some exciting cause other than that.

There was another cause, he thought, for these hemorrhages, namely, disease of the Fallopian tubes. He did not mean by that a salpingitis that will fill the tube with pus or serum, and be so large as to be easily felt, but actual disease of the mucous membrane, perhaps not extending much deeper than the mucous membrane, but capable of producing a continuous hemorrhage. He was unable to point out a case in his experience, or in that of others, that is plain, but he simply threw it out as a hint, as a possible explanation, for further examination. Perhaps it is not a parallel case, and yet it seemed to him that there is a similar cause. A woman after menstruation, or a week after the cessation of the menstrual period, takes cold, has a slight cough, has a traumatism or some slight disturbance in the pelvis giving pain and other evidences of inflammation; we all know that one of the most common symptoms attending upon the pain, etc., is hemorrhage from the uterus. Not a severe one, perhaps, but a slight flow. It might be said, that means congestion of the whole pelvic viscera. True, it ordinarily does. But what does produce the uterine flow? Is it the uterus alone, is it the ovaries alone, is it the broad ligaments only, is it the Fallopian tubes and the uterus, is it the Fallopian tubes only? It seemed to him in some instances that it is only the uterus, not the broad ligaments and vascular structures about the uterus; but that the Fallopian tubes and ovaries have very much to do with this condition. He believed that if these cases were observed long enough, we should find a congestion of the uterus produced by a fibroma or sarcoma, or disease of the Fallopian tubes or ovaries, and preëxisting disease of the ovaries and tubes produces hyperæmia of the uterus that favors the development of fibroma and sarcoma.

DR. C. T. PARKES mentioned a report that he had recently read in one of the foreign journals that applied somewhat to this question. A case was reported where all these remedies were used; curetting and intra-uterine dilatation, and finally the surgeon concluded he would make an abdominal section. After making the section, he found what he reports as a cavernous angioma of one of the ovaries. It was removed and the case cured.

DR. A. REEVES JACKSON said that the cases which he had reported were not the only ones which he has failed to cure, but he had accurate notes of these, and he considered them sufficient for the purpose of bringing the matter before the Society.

The existence of fibroids, as a probable cause in some of these cases, as suggested by Dr. Nelson, had occurred to him. The question of possible pregnancy also arose, and he made such inquiries and investigations as he hoped would lead to a settlement of the latter point especially. We know that in fibroid growths of the uterus hemorrhage becomes by and by a prominent symptom, and usually it is the one which first calls the attention of the patient to her condition; and in these cases we usually have no trouble in the diagnosis where there is present either a polypus or a fibroid of sufficient size to alter the shape of the uterus or to be felt within the cavity of the organ. He could conceive how a very small fibroid, incapable of detection by ordinary methods and ordinarily skilled hands and fingers, might produce hemorrhage, but would it yield to the medical treatment of a fibroid? If it did not, we should hardly feel justified in making a laparotomy to discover the existence of a fibroid that presented no other evidence of its existence than hemorrhage. It is true that patients nowadays submit to laparotomy when they are urged to do so; yet the one who urges should have some kind of objective reason upon which to base his advice. In none of these cases could he detect any change whatever in the shape of the uterus. The fact is, that when we find a fibroid as the cause of hemorrhage, it is already surgical. It is large enough sometimes to have existed, with their slow rate of growth, for many years, and yet hemorrhage has probably not been present until the latest part of the history.

Disease of the Fallopian tubes, he had no doubt, is a frequent cause of persistent uterine hemorrhage. Primarily, the blood may have its source in the tube; later, by overaction—by the mere bleeding—there is produced manifest disease of the endometrium, as in the case last cited. But, granting this, inasmuch as we can only reach the uterine lining anyhow by our topical treatment, even if we have a suspicion that there may be tubal disease, it does not aid us in deciding what to do for it. The ethics of the condition are in doubt.

Allusion has been made to the death of the third patient. She died of peritonitis following the operation. He had reported it in order to call attention to the danger of what is usually considered a simple and safe operation. In this case, the operation was done under the strictest antiseptic precautions; every care was taken to avoid any danger from that source. Unfortunately, he was

obliged to leave the city shortly after the operation, leaving the patient in an unsatisfactory condition, temperature 102°, rapid pulse, red cheeks, and evident high constitutional excitement. On his return he found her still worse, and shortly afterward she died of peritonitis, whether septic or not he did not know. The dilatation was mechanical; it was not made by tents, which he considered a dangerous method of treatment.

He did not mention in the paper an important fact in the subsequent history of the last case. It was this: During the last examination he detected a distinct swelling at the side of the uterus, apparently in the Fallopian tube. Then he suggested that if the patient did not get better, here was a reason why we might properly make a laparotomy—not for the hemorrhage, but for the swelling which was possibly the cause of it. The curetting on three occasions certainly had a very satisfactory effect. On one occasion, for four months subsequent to the operation the patient had no bloody discharge whatever, natural or unnatural, which would seem to indicate that, at that time at least, the cause of the hemorrhage was in the uterus, and that the effect of the remedies applied more thoroughly after the dilatation had a controlling influence for a long time. This is very satisfactory to a patient who has been having a profuse or prolonged hemorrhage. This patient was under the care of excellent men in Canada, who, so far as he knew, never detected any swelling, and he inferred from this fact that the latter symptoms were of comparatively recent appearance.

The nitric acid, which he applied in one case, he formerly used a great deal more than he did now. His method of using it is that recommended by Athill some years ago. The uterus is previously dilated, and when sufficiently open, the pure nitric acid is passed into the uterine cavity on an ordinary cotton-wrapped applicator. He placed the patient on her back, introduced a perineal depressor, seized the anterior lip of the uterus, drew the organ down, and surrounded it entirely with cotton which has been dipped in a solution of bicarbonate of soda. The applicator is dipped into the acid, passed into the uterine cavity, and held there for a few minutes. It is then withdrawn and the vagina syringed until all fuming ceases. Then he removed the tampons from about the cervix, and another tampon saturated in glycerine is placed over the os uteri. Such was the method used in this case. The nitrate of silver he applied in this way: A few grains of the crystal are melted in the bottom of a test tube. A silver uterine probe is dipped into the fluid and withdrawn a few times, until a bead is formed on the end of the instrument the size of a grain of rice. This is passed through a speculum up into the interior of the uterus, and held there for a few minutes, and slowly drawn out so as to come in contact with the surrounding membrane. This method has been recommended as very effective in chronic cases of menorrhagia. The hydrastis he has used a good deal. Loewenthal has reported several cases in which he has used hydrastis for preventing menstruation absolutely in persons to whom it was injurious; chlorotic and anæmic patients, he affirms, have been effectually cured by the use of hydrastis, given so as to obliterate absolutely the function of menstruation. He has never used it for this purpose, but he believes in the principle. He did not believe menstruation, of itself, does any woman any good.

As to the relative frequency of inflammation before and after the advent of antiseptics, he was hardly prepared to answer. If the theory of septic inflammation is correct, all diseases resulting from the ordinary operations ought to be less, if antiseptic precautions are used. He remembered but three cases of ordinary operations in which death followed. Inflammation was present in all of them, and it may have been of a septic character, and so may it have been in this last case which he related. But the patient complained of pain immediately after the operation, and she was never free from pain until the time of her death, six days later.

Ergot he has not found to be beneficial in any condition of the uterus involving hemorrhage, unless it be subinvolution during its soft stage where the uterus is large and heavy. In those cases he believes ergot is an excellent remedy. That condition was not present in any of these cases. Whether in one of them the cessation of menstruation for two months indicated pregnancy, he did not know, but there was no other evidence of it; there was no fœtus observed; nor was the history that of an early abortion, so that the single symptom of absent menstruation in a woman who was irregular at times was not so significant as it might be under other circumstances.

In the case stated by Dr. Parkes, the disease of the ovary was found, as he understood, after all other theories and much treatment had been exhausted, and it was supposed that there *might* be some disease *somewhere* in the pelvis which could only be detected and possibly removed by laparotomy. But it is doubtful whether this would be a safe rule to follow even when all technical means and all known remedies for persistent hemorrhage have failed; if the woman is not endangered by the hemorrhage would it be right to subject her to any risk of her life for a *possible* cure? If life were jeopardized, there could, of course, be no question as to the propriety of laparotomy. This, however, was not the condition in any of the cases which he had related.

DR. EDWARD B. WESTON read a paper on

A NEW PROCEDURE IN CASES OF ANTICIPATED COMPLETE RUPTURE OF THE PERINEUM.

On the 4th day of October he was, for the fourth time, called to attend Mrs. H. in labor. She is a woman somewhat below the average size, and has rather a narrow pelvis, while her children are all large at birth. At the birth of her first child, a boy who weighed twelve pounds, she received a complete laceration of the perineum. The second child, also a boy, weighed nine and a half pounds, and the perineum was torn to the anal sphincter. The third pregnancy was terminated in the sixth month by unknown cause. The child was, of course, small, but delivery took place very rapidly, and there was again a rupture, though not to the same degree as in the second labor. On visiting the patient at the beginning of her last labor, an examination showed a well-restored perineum, and a child seemingly very large presenting in the first position.

Meditating over the situation, remembering what had taken place in her previous labors, he feared a complete rupture would again occur, however well he might apply the various methods or procedures for protecting the perineum. The thought came to him that it would be well to introduce a deep suture before the laceration occurred, and before the head began to press upon the

perineum, so that if complete rupture did take place he should have one suture already in place, by means of which he could easily bring the parts into accurate apposition, and which could in a measure be used as forceps or tenaculum, and be of great service in whatever after-operation might be necessary. He could see no objection to the step; so with a long curved needle he introduced a silk suture a little more than half an inch to the right of the anus, and carried it up about an inch and a half in the recto-vaginal septum, and brought it out on the left side at a point corresponding to its point of entrance. He left either end six inches long and tied them together. Again there was a laceration, though not a complete one. The child, a boy, weighed eleven pounds.

He then considered the objection which would be raised to the procedure. One objection will be that we cannot tell when we are to have a complete rupture. We cannot always know in advance, and here the unexpected often happens. But in some cases we feel very sure it will occur, and it is in these cases that the stitch should be introduced. And in cases of doubt the stitch had better be placed, as it will in any event do no harm. Another objection may be that, if rupture should take place, we cannot tell what direction it will take. In the great majority of cases, externally, the laceration occurs, practically, in the median line. So that whatever its internal course may be, all the advantages claimed for the stitch will be obtained. Again, that should the procedure be recognized as proper in certain rare cases, it will be abused by too frequent use. And that, with the stitch in place and with confidence in the future assistance to be derived from it, our vigilance in protecting the perineum might be relaxed. To these objections he could only say that the conscientious accoucheur would not be influenced by them.

Some will suggest the danger of sepsis. He did not believe this need be feared. If antiseptic precautions have been observed, and the stitch buried in the tissues through its whole length, the increased danger will be nil. If, fortunately, rupture does not occur, the stitch can be cut short at one side, withdrawn, and no injury will have been done. Others will say that, even should complete rupture take place, the physician should be skilful enough to repair it by some one of the old methods. This is true; but the fact remains that there are all degrees of surgical skill, ranging from no skill to that of the highest degree. It may also be said that the obstetrician who would introduce the stitch before laceration occurred would be the very one who would have least need of it afterward. He granted this. But the majority would prefer to have the stitch in place, rather than to begin repairs without it, the parts being not only lacerated, but often so contused, swollen, or retracted that their normal relations can scarcely be made out.

If, by the procedure suggested, some one may be enabled to repair a complete laceration of the perineum, which otherwise would be left for a gynecologist to repair after the patient had suffered, mentally as well as physically, for weeks or months, he thought it should be objected to. And however expert an operator may be, it is true that the easiest, simplest way of obtaining a desired result from operative procedure is the best way.

These were the chief objections which have occurred to him as likely to be raised. The advantages of the procedure have already been sufficiently indicated.

DR. H. P. NEWMAN suggested as a substitute for this manner of procedure one that has been long in use, namely, episiotomy, or bilateral incision of the vulva. It has served him well in one or two instances. It has this obvious advantage, that it allows of tearing laterally in such a way as not to injure the perineal muscles, or weaken the recto-vaginal wall. In this way he can also prevent complete laceration, where some tearing is inevitable. He should regard Dr. Weston's method as a most admirable means of placing the initiatory stitch, where rupture seems imminent, although he could not see how it could well obviate the tear.

DR. E. W. SAWYER desired to say in connection with making the slight lateral incision, or episiotomy, that it does often prevent the laceration from occurring in the median line. He has made these incisions, one on either side, in nearly every forceps case in primiparæ, and he never saw the least harm come from it. In some instances, when he thought the perineum would be extensively torn, the laceration was really very short and insignificant. He thought the suggestion of Dr. Weston is most excellent; it is in exemplification of the old axiom that a stitch in time saves nine, and he having attempted to repair an entirely lacerated perineum more than once immediately after parturition, knew something of the difficulty of introducing a deep, properly applied suture, and if he could have the first suture introduced when the parts were in their normal relations, he should consider that he had overcome the greatest obstacle in immediate repair. He did not see one objection to the introduction of the suture.

DR. JACKSON thought that the suggestion made by Dr. Newman was not a very new one. The two incisions should not be lateral but diagonal, so as to pass about one-half inch on either side of the fourchette directly outward, going beyond the rectum on either side. He had never used it, but it seemed to him that in a case where complete laceration seemed inevitable it would certainly be a preferable procedure to allowing the perineum to rupture. He did not understand Dr. Weston to say that the stitch recommended by him would prevent the laceration, but that it would aid in its repair, and from this point of view he regarded the suggestion as a very valuable one. It would certainly simplify the primary operation for rupture of the perineum.

DR. E. B. WESTON said that this stitch was not suggested as a preventive, but simply as an aid, in case a laceration should take place after all we had done, whether by episiotomy or any other method which we could think of, in bringing the parts together.

CORRESPONDENCE.

THE HEALTH OF ST. AUGUSTINE.

To the Editor of THE MEDICAL NEWS,

SIR: Rumor of prevailing sickness in St. Augustine makes the following statement of interest.

Continued effort toward sanitary improvement since the outbreak of epidemic yellow fever in Key West, in the spring of 1887, increased by the nearer approach during the past summer, has shown definite results, not only in external appearances, but in a reduction of death-rate and absence of disease dependent upon vitiated air.

From August 11, 1888, until the frost of December

20th (temperature 29°, official), this city was guarded by a cordon of 210 men by land, and 25 by water approach, under discipline of military strictness. In September dengue fever made its appearance. Its return in this month, or in October, is common, and excited no concern. Absent physicians were instructed by the Board of Health that their services were not required. Dengue is regarded with no more gravity than a common cold at the North; few called their physicians, and all recovered within the usual two or three days.

The fact that no death occurred from dengue fever, and that the disease disappeared spontaneously before the middle of October, sufficiently disproves any opinion that this may have been the dreaded enemy. There has not been a case of fever of any kind in November or December, to my knowledge, and I am not aware of one at the present time. Among the officers and troops, and their families, the records indicate no sickness. The city register of deaths shows the number to have been, in August, 13; September, 10; October, 9; November, 10; December, 11; January, to date, 1; only 5 out of the 54 being the result of climatic causes, viz., 2 typho-malaria, 1 dysentery, 1 diarrhœa, and 1 continued fever.

Very respectfully yours,

FRANK F. SMITH, M.D.

ST. AUGUSTINE, FLORIDA, January 8, 1889.

NEWS ITEMS.

The Prevention of Puerperal Fever.—For the purpose of preventing puerperal fever, as well as other infectious diseases of childbed, the following rules, to be added to those found in the *Manual of Midwifery for Prussian Midwives*, have just been promulgated by the Minister of Education, under date of November 22, 1888.

1. The midwife must pay the greatest attention to cleanliness; this cleanliness is to be especially observed during delivery and in attending the mother in childbed.

2. While attending to her duties the midwife is only to wear dresses the sleeves of which will admit of being rolled up to the arm. The dress itself must be covered with a broad, white apron, covering the bosom, and made from a light, and washable material.

The apron which has been worn by the midwife during her first examination of a woman in labor, or while attending to a woman in childbed, is not to be used immediately after the last washing, but is to be separated and laid aside from the rest of the midwife's wearing apparel.

3. Before going to a confinement, or to a woman in childbed, the midwife will see that her finger-nails are cut short and round, and the edges are smooth; she must remove the dirt from her nails, and ungual folds as well as from any possible cutaneous fissures of her hands, and wash her hands and forearms thoroughly, for which process she is to use her own soap and hand- and nail-brush.

4. Besides the articles mentioned in § 96, abstr. 1 of the *Manual of Midwifery*, a midwife will carry the following articles:

a. A clean apron of a light, washable material (one which has not been used since last washed), which must cover the entire front of her dress.

b. Soap to clean hands and arms.

c. A clean nail- and hand-brush (her own property) for the same purpose.

d. A clean towel, which has not been used since it was last washed.

e. Three ounces of pure carbolic acid in fluid form, in a bottle, bearing the following inscription in clear type: *Caution! Carbolic acid! Dilute thoroughly; for external application only.*

An accompanying irrigator to hold two pints, to have the pint marks plainly visible, and to be supplied with a well-fitting rubber tubing, from one to one and a half yards long. The bottom of the irrigator to be flat, and it, as well as the necessary connecting tubes, to be made of glass.

5. The midwife is responsible for the cleanliness of her utensils, and for the safe-keeping of the carbolic acid, which latter must be inaccessible to any other person.

6. Vaginal examinations of a pregnant woman, or of a woman in labor or in childbed, must never be undertaken by a midwife unless with bare and thoroughly clean hands and forearms.

Before making an examination by which she comes in contact with the genitals of the woman examined, or with a possible wound in the region of these parts, the midwife must roll her sleeves up to her arm, and fasten them in such a manner that they cannot unroll, then thoroughly wash her hands and forearms in lukewarm water, using for this purpose her own soap, nail- and hand-brush, and dry her arms on a clean towel, which has previously not been used. The same mode of procedure holds good when examining the external genital organs or any adjacent parts, for the drying of which she is to use absorbent cotton or jute, but never a sponge.

Besides this, it shall be the duty of the midwife to see that in cases of confinement, circumstances permitting, the mother is supplied with clean linen, which has previously been warmed, as well as clean bed-linen during the period of confinement and throughout her childbed.

After these preliminaries the midwife is to thoroughly disinfect her hands and forearms with the carbolic acid solution, after which she may proceed to examine the pregnant woman, woman in labor, or in childbed.

7. Where the words "carbolic acid solution" are mentioned, reference is had to a solution which the midwife is to prepare in the following manner:

To every two pints of water she shall add one ounce of carbolic acid, and in such a manner that the acid, which is somewhat heavier than water, does not settle to the bottom of the dish, but is equally distributed. This is best attained by pouring the solution into a bottle and thoroughly shaking the same. If the mixture is prepared in an ordinary round dish, the acid is only to be added by degrees, stirring constantly while so doing. The acid is *never* to be directly poured into the irrigator, because the acid not being thoroughly diluted, might sink to the bottom of the receptacle, and when drawn off injure the part it is applied to, most severely.

8. Before the first examination of a woman in labor, the midwife is to prepare four pints of the carbolic acid solution. Of this she shall put so much into the irrigator, that the tubings, catheter, and umbilical scissors, which she has previouly laid therein, are entirely covered with the solution. If one of the instruments is utilized, it must, after having been used, be thoroughly washed with soap, dried, and be put back into the irrigator, and kept there until no longer needed. If the irrigator is to be used for injections or washing purposes, it will be necessary to put

the instruments and the carbolic acid solution into some other vessel.

The remainder of the solution—about three pints—is to be divided into two equal parts, and put into two vessels. One of these is to serve for the *first* disinfection of the hands and forearms of the midwife, the other for any subsequent cleansing of her arms and forearms after each and every examination of the mother, or any other doings which would bring her in contact with the generative organs, or with any wound adjacent to the same.

9. After labor, it shall be the duty of the midwife to wash the external genital organs with clean, lukewarm water (which has been thoroughly boiled), and to dry the same with a clean towel or absorbent cotton.

10. The midwife shall not wash out the vagina or give the mother any injections without a physician's permission, except in such cases as are mentioned in the *Manual* when she is to use the carbolic acid solution instead of water.

11. The midwife must avoid any unnecessary contact with the genitals of the lying-in woman, or with parts soiled with the lochia, or with any bad-smelling or purulent portion of the body (as ulcers, a dead fœtus, linen soiled with the lochia, etc.), and must avoid as much as possible all intercourse with persons suffering from any contagious disease, or any suspicious illness, as childbed-septicæmia, metritis, perimetritis, diphtheria, scarlet fever, smallpox, syphilis, chancre, gonorrhœa, typhoid and typhus fever, cholera, or dysentery.

12. Should the hands or instruments of the midwife have come in contact with the genitals of a lying-in woman, or with any article soiled with the lochia, she shall immediately cleanse her hands with soap, nail- and hand-brush, while her instruments must be cleansed and placed in the disinfecting solution for one hour, as before labor.

13. Should the lochia have a bad odor, or be purulent, or the midwife have come in contact with any article which has been in contact with these discharges, or should the person with whom the midwife has come in contact with her hands and instruments, be suffering from any of the diseases mentioned in § 11, the midwife shall follow out the rule laid down in § 12, and cleanse her hands and forearms for at least five minutes in the carbolic acid solution, and boil her instruments for one hour in water before placing them in the carbolic acid solution.

14. Should the midwife have been to the dwelling of a person suffering from any of the following diseases, or from any suspicious disease, as childbed-septicæmia, metritis, perimetritis, erysipelas, diphtheria, scarlet fever, smallpox, syphilis, chancre, gonorrhœa, typhoid and typhus fever, or dysentery, she must not examine a pregnant or lying-in woman, nor even call on her, before she has changed her wearing apparel, and has cleansed and disinfected herself as prescribed in § 13.

15. Should a person suffering from any of the diseases mentioned in § 14 live in the same dwelling with the midwife, or should a lying-in woman under the midwife's care have died of puerperal fever, metritis, or perimetritis, or be suffering, or have died from a suspicious illness, the midwife shall obtain all further orders from the district physician, and shall, until such are forthcoming, abstain from any further prosecution of her calling.

16. Should the midwife be nursing a lying-in woman suffering from puerperal fever, metritis, or perimetritis, or any other suspicious illness, she must not under any circumstances examine a pregnant woman; and a woman in labor, or a lying-in woman, only when another midwife is not to be had, and under such circumstances only after having bathed and cleansed her entire body in water and soap, and then disinfected and dressed herself in clean clothes, as laid down in § 14.

17. The wearing apparel which the midwife has worn at the examination of a person infected with any of the diseases mentioned in § 14, must not be brought in contact with her other wearing apparel, but must be thoroughly boiled, washed with soap, and disinfected with steam in a steam-disinfecting apparatus before being again used.

18. The midwife must never touch a corpse, or the clothing worn by a corpse. Should she, however, have done so, she must proceed as laid down in § 16.

Medical Royalties.—According to *Truth*, "Prince Louis Ferdinand, of Bavaria, who is married to the Infanta Paz, is a very clever surgeon, and at one of the hospitals in Madrid he recently operated on a woman who was suffering from cancer of the breast, with complete success. His relative, the Duke Charles Theodore, brother of the Empress of Austria, is both oculist and surgeon, and is very skilful; but his fondness for the knife is not appreciated at the Vienna and Munich hospitals, for whenever he operates all the regular arrangements are upset, the whole staff is required to be in attendance on him; he must always be respectfully addressed as "Your Royal Highness," and strict etiquette is observed, all of which is decidedly a nuisance. When the Duke is at Vienna, he often passes the whole day in the General Hospital, and if there are any arms or legs to be cut off, he hastens joyfully to the work. Duke Charles's zeal may possibly be moderated by his accession to the Bavarian estates of his father, Duke Max, who died the other day. He is married to a cousin of the King of Portugal."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 8 TO JANUARY 14, 1889.

By direction of the President, ROBERT W. SHUFELDT, *Captain and Assistant Surgeon*, will report in person to Brigadier-General Wesley Merritt, President of the Army Retiring Board, at Fort Leavenworth, Kansas, for examination by the Board.—Par. 1, *S. O. 4, A. G. O., Washington*, January 5, 1889.

By direction of the Secretary of War, R. W. JOHNSON, *Captain and Assistant Surgeon*, is relieved from duty at the U. S. Military Academy, West Point, New York, and will report to the commanding officer, San Carlos, Arizona, for duty at that post.—Par. 10, *S. O. 7, A. G. O., Washington*, January 9, 1889.

JOHNSON, RICHARD W., *Captain and Assistant Surgeon* (U. S. Army).—Is granted leave of absence for fourteen days.—Par. 1, *S. O. 8, A. G. O., Washington*, January 10, 1889.

By direction of the Secretary of War, JAMES E. PILCHER, *Captain and Assistant Surgeon*, will repair from Fort Wood, New York Harbor, to Philadelphia, Pa., at such time as his services can be spared, for the purpose of giving instruction to the Hospital Corps of the First Brigade, National Guard of Pennsylvania.—Par. 6, *S. O. 8, A. G. O., Washington*, January 10. 1889.

HARRIS, HENRY S. T., *First Lieutenant and Assistant Surgeon* (U. S. Army).—Will, upon the arrival of Acting Assistant Surgeon Boyer, proceed from Camp Pena Colorado to the post of San Antonio, Texas, and report to the commanding officer, for temporary duty.—Par. 4, *S. O. 1, Headquarters Department of Texas, San Antonio, Texas*, January 2, 1889.

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ORIGINAL ARTICLES.

POISONING BY CHROME YELLOW USED AS A CAKE DYE.

The Subsequent Clinical History of the Cases, Including a Case of Paralysis Agitans and of Chronic Endocarditis.[1]

BY DAVID DENISON STEWART, M.D.,

CHIEF OF THE MEDICAL CLINIC OF THE JEFFERSON MEDICAL COLLEGE; PHYSICIAN TO ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN.

I REPORTED, in September, 1887, a clinical analysis[2] of 64 cases[3] of poisoning by chrome yellow used as a cake dye. The present paper is a further history of such of these as I have had under observation to the present, a period of fifteen months.

8 of the 64 died in convulsions. The later history of 12 of the 56 survivors I have been unable to ascertain. Absolutely nothing could be learned of 6 of the 12; they are, however, believed to be living. I regret I am unable to report their condition. They were severely poisoned, after prolonged exposure. Nor could sufficient be learned of the second 6 to justify their consideration here. Several of these were personally questioned but with unsatisfactory results.

At the time the data for the analysis of the 64 cases were being collected, all of the 44 now reconsidered exhibited some unmistakable and pronounced symptoms of plumbism, such as cachexia, colic, arthralgia, or encephalopathy, and the blue line was present in the gums of all save 1. A minority only of the 44 received any continuous treatment, and many of these were in the hands of homœopathists, who, it is believed, did not give eliminants. The health of 31 of the 44 is yet decidedly impaired, and several of the remaining 13 ail slightly.

The lead cachexia is still present markedly in 12. In these the skin has been of a decided earthy-yellow hue, continuously since the poisoning. The gums of 8 of the 12 show a fading though distinct blue line, and are retracted from the teeth. In 3 of the 12 there is a purplish line, and in 1 no trace of a line exists. Considerable anæmia[1] is present in those in which cachexia is yet marked, and in 1 in which cachexia is absent. The mucous membranes and conjunctivæ are pale. In several a venous hum can be heard in the neck; and, in 1, a basic (pulmonary) murmur.[2] Most of the 12 have breathlessness and palpitation on slight exertion. Several speak of præcordial pain. 8 of the 12 are very dyspeptic; 5 have yet occasional attacks of severe colic which occur unprovoked by food or other known cause. All of the 12 have headache, which in several is severe and constant.

Evidences of functional derangement and of organic disease of the heart have appeared in 7 of the 44 since the poisoning. In 6 of the 7 there are present symptoms of cardiac irritability, such as præcordial pain, increased by exertion and then accompanied by palpitation and shortness of breath. In 2 of these the palpitation and shortness of breath occur often when at rest and in recumbency, as at night. All of the 6 have increased frequency of pulse, and the heart of each is overacting, with accentuation of the second sound at the apex and some increase in the area and force of the impulse. In 3 of the 6 this increase is greater than can be accounted for by mere functional overaction, and other accompanying physical signs and symptoms indicate slight but unmistakable hypertrophy. The seventh case illustrates one of the insidious effects of chronic lead poisoning, a tendency toward slow degenerative changes in the vascular system. There was at first irritable heart, which was succeeded by hypertrophy, and that by a chronic mitral valvulitis with insufficiency. Dilated hypertrophy of the left ventricle then followed.[3]

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[1] Read before the Philadelphia County Medical Society, December 12, 1888.

[2] This paper was published in THE MEDICAL NEWS, December 31, 1887.

[3] In addition to these, I have notes of 15 others, making a total of 79 undoubted cases traced to 2 bakers. The 15 include 4 cases of lead convulsions, which in 3 ended fatally. It is unfortunate that I was unable to obtain the histories of very few of the large number of early patrons of Palmer, the baker, who used the dye freely for years in another section of the city than that in which he was apprehended. No doubt there were many interesting cases of plumbism among these.

It is to the point, in this connection, to state that I believe I can trace to lead-poisoning from dyed cakes many cases of disease of seemingly obscure or supposed idiopathic origin, seen in the past year and a half of my service in the out-patient medical department of the Jefferson College Hospital. Among these are cases of pronounced anæmia, renal fibrosis, peripheral neuritis, spastic paralysis, neurasthenia, obstinate headache, and, at least, one case of long-standing delusional mania.

[1] Through an utter lack of coöperation and interest on the part of these cases, none of which were my patients, I was unable to obtain a blood examination.

[2] This was not examined for in all.

[3] Professor Da Costa, to whom I showed this case somewhat more than a year ago, when the valve changes were not perceptible, and, later, when they were markedly present, fully agrees with me as to the pathological condition, and as to its plumbic origin.

The case is that of Mrs. H. H., aged forty-seven. There is absolutely no history of rheumatism, gout, syphilis, or alcoholism. Her health had always been good until the spring or summer of 1886. Attacks of typical lead colic then developed with the usual attending phenomena. These continued, at intervals, until the summer of 1887. There were also present during this period severe headache and constant mental and physical exhaustion. Slight pains in the ankles, unaccompanied by any inflammatory condition, but with sensations of numbness and burning in the soles of the feet, were occasionally felt. When first seen in June, 1887, she had been a patron of Palmer for fifteen months, and had eaten almost daily of the dyed cakes. Her condition then was much as has been stated. In addition, it was noted that she was emaciated and dyspeptic, had palpitation and shortness of breath on exertion, and præcordial pain. There was heightened arterial tension, a much overacting, irritable heart, but no murmur. Lead was found in her urine by Dr. Leffmann at this time, and an examination of the eye-ground by Dr. Hansell showed "œdema of both retinæ, with effusion into the right retina below the fovea; pulsation of larger and tortuosity of both large and small veins."

Because of her absence from the city during the summer of 1887 I saw her but seldom. Ailing severely in September following, she presented herself for regular treatment, and has been under constant observation to the present. The mental and physical prostration had persisted, and, in August, coarse tremor, involving the head and limbs, had appeared. The shaking began each morning on rising, and continued constantly through the day. It was especially aggravated by physical exertion. Decided weakness of grasp accompanied it, but no paralysis. She had continuous headache, and palpitation was so troublesome at night that she was unable to rest in recumbency. Early in September there was found extreme overaction of the heart, with undoubted hypertrophy of the left ventricle. No murmur, however, could be detected until about the 14th of October following. There had then developed a faint systolic mitral bruit, which was accompanied by distinct accentuation of the pulmonary second sound. Palpitation was now more distressing than formerly, and was associated with attacks of shortness of breath and of dyspnœa by day, but oftener by night. Prior to this, believing renal fibrosis was in progress, the urine, which had been of a low gravity and profuse in amount, had been frequently examined for albumin and casts, but always with negative results. Shortly subsequent to the development of the murmur albumin appeared, detectable at first only with picric acid, but soon with nitric. The amount never exceeded a gramme to the litre, and was usually less. Coincident with the appearance of the albumin the urine diminished in quantity, and hyaline and granular casts were very often found, sometimes in large amount.

The remaining facts in the case are concisely as follows: The mitral murmur became louder, and the area over which it could be heard greater. Evidences of stretching of the left ventricle soon appeared, and, with these, signs of overloading of the pulmonary and general venous circulation assumed prominence. The attacks of dyspnœa at night deepened into orthopnœa. There were cough and frequent blood-spitting. The ankles and feet were at first puffy, and then swollen. Purpuric spots appeared on the legs. The portal circle was constantly congested, causing an icteroid hue of skin and pronounced gastro-intestinal catarrh.

This condition of things continued pretty constantly until the spring of 1888. She then improved very steadily, and the more pronounced signs of "back-working" were only occasionally present. Since April last the daily quantity of urine passed has been normal or above, and albumin and casts have been absent. All the usual symptoms of plumbism had disappeared at this time, The tremor persisted intermittently for months, but grew less and less frequent as her condition ameliorated.

The physical signs referable to the heart are now those of mitral regurgitation and dilated hypertrophy of the left ventricle, with hypertrophy in excess of the dilatation. The murmur is very distinct, and has the usual characteristics of that of mitral insufficiency. Though there are yet almost constantly present some indications of mechanical derangement of the circulation, such as œdema of the ankles and legs, congestion of the portal viscera, and, at times, of the lungs with blood-streaked sputum or actual bloodspitting, and attacks of bronchial catarrh, freedom from excessive palpitation in the past few months could be obtained only by the persistent use of aconite. Digitalis and strophanthus, which, in moderate doses, were of service a year ago, now aggravate the palpitation, and do not materially lessen the tendency toward venous congestion. The attacks of dyspnœa, which occur once or twice weekly, are relieved, as before, by free dry cupping of the chest. Restorative agents, such as arsenic, iron, and the vegetable tonics, are employed to improve nutrition. Frequent resort to purgatives is necessary to relieve the portal stasis.

I have no doubt that some cases of chronic endocarditis, the origin of which we are at a loss to account satisfactorily, a history of acute articular rheumatism or of strain not being obtainable, are of lead origin.[1] Lead is, I believe, a more frequent

[1] Chronic valvulitis, as a result of lead poisoning, is not uncommon. Duroziez reported (L'Union Médicale, December 15, 1885) eleven cases of mitral stenosis and one of aortic regurgitation, occurring in plumbic subjects in whom there was absolutely no other assignable cause for the valve affection.

A typical case of lead endocarditis, originating aortic stenosis and mitral regurgitation, is that of B. F. K., a painter for twenty-eight years, who has been under constant observation in the out-patient medical department of the Jefferson College Hospital since 1881. He first presented himself for treatment because of obstinate colic and an ileocolitis which had arisen in consequence of lead-poisoning. There was a well-marked blue line, typical lead cachexia, constant headache and vertigo, and distressing arthro- and generalized neuralgia with cramps in the muscles of the extremities, and jerking of the limbs. The urine was free from albumin. His heart was examined on several occasions by Prof. Da Costa between 1881 and 1885. On the first exploration there were found considerable overaction, and a soft

cause of chronic endocardial inflammation than gout, syphilis, or alcoholism. Even where a doubtful history of rheumatism exists, we should not be deterred from an inspection of the gums and an inquiry as to the possibility of lead poisoning in the past. In all cases of valvulitis of seemingly obscure source this should be done as a matter of routine. A caution is necessary that a mere history of pains in and about the joints must not be accepted as undoubted evidence of rheumatism, without a careful investigation as to signs of accompanying arthritic inflammation; for it is undoubtedly a fact, of which I have seen striking examples, and the non-recognition of which by practitioners has caused many lead cases to be overlooked, that arthralgic pains are among the most common of the protean manifestations of plumbism; and that they may persist for lengthy periods entirely without other noticeable symptoms, save, perhaps, cachexia; and that even the latter may be absent in undoubted cases.

An abnormally forcible cardiac impulse, with accentuation of the aortic second sound and increased tension in the peripheral arteries, is constantly present in many cases of lead cachexia. In these a tendency toward insidious valvular changes must be great, and this is no doubt favored by the state of faulty nutrition and anæmia always existing in such cases. Simple anæmia is supposed sometimes to originate chronic valvulitis, through the augmented arterial tension present in its earlier stages causing increased backward stress on the valve curtains, and especially on the mitral leaflets, which, with each ventricular systole, are subject to a force equalling the resistance of the whole arterial circuit. Since the conditions favorable for the production of chronic valvulitis are more constant and decided in plumbism than in ordinary anæmia, it is not unlikely that chronic lead poisoning is oftener a cause of slow valve changes than mere poverty of blood. Having in mind the wide prevalence of lead poisoning and the frequency in the past year and a half with which I have encountered cases of somewhat obscure type, which no doubt I would have previously overlooked, because not on the watch for them, and seeing repeatedly in my service in the out-patient medical department of the Jefferson College Hospital cases which have passed through the hands of other practitioners unrecognized, I believe it probable that mitral stenosis, often met with as an insidious affection in young anæmic women free from rheumatic history, not infrequently owes its origin to unsuspected lead poisoning.

Disorders of digestion are prominent in a number of the 44, independent of colic or colicky pains. One (Mrs. G. A.), who was so prostrated by long-continued colic and arthralgia, that she was confined to bed for two months, and lost thirty pounds in flesh, has, in addition to attacks of severe generalized headache, constant gastric irritability. A trifling dietetic error which in health would not affect her, now readily provokes vomiting.

Obstinate constipation is yet present in 7. In these the bowels do not move without purgatives.

A chronic catarrhal enteritis has existed in 1 since his first attack of colic fifteen months ago. There are five or six loose passages for three or four days, succeeded by two or three days of constipation. Abdominal tenderness and pain are felt, in addition to colic which is yet frequently present though in a milder form. He had arthralgia affecting the knees and ankles for months, so severe that he was compelled constantly to maintain the recumbent posture. He also had wrist-drop.

Apart from slight colicky pains, which have been frequent in many since the abatement of pronounced symptoms of plumbism, and which, in a few, may be traced to dietetic errors, paroxysms of abdominal cramp having all the intensity and character of true lead colic, yet occur in 5. The seizures appear at longer intervals, as time passes, and are lessening in intensity. At first the interlapse averaged from ten to fourteen days, and the duration of the attack was three to seven days, but the former gradually lengthened and the latter diminished, until recently, in each of the 5, a severe seizure occurred about every four to eight weeks, and lasted from one to three days. None of these cases received regular treatment. In all there is reason to believe lead is yet present in the system.

Pains about the joints and in the muscles in their vicinity yet occur in 15.[1] In some the pains have been constant, with exacerbations and remissions; in others they have occurred intermittently every five to thirty days, in attacks lasting three to ten days. The ankles and knees, and the neighboring muscles are most frequently affected in 9; 3 of these have in addition sharp stabbing pains in the wrists, and 1 of the latter, pain in the hip. In 2 others the ankles, knees, and hips are equally affected; in 1 solely the ankles and wrists, and in another the lumbar and sacral regions. Dull and aching, burning or darting pains in the muscles

systolic murmur limited to the apex. In the autumn of 1884 the area of cardiac dulness was found to have considerably increased. The apical murmur was very distinct, rather harsh in quality, and was well transmitted toward the inferior angle of the left scapula. There was now present a systolic right basic murmur, distinct in quality and pitch from the apical bruit, and heard in the carotid artery. There had been frequent cardiac pain, attacks of palpitation, and signs of arterial ischæmia. At the present writing the mitral and aortic murmurs are very distinct. Compensation is good.

[1] 13 of these received no treatment, save from homœopathists; the remaining 2 were under a regular physician's care for two or three weeks when first affected.

adjacent to the affected joints accompany the arthralgia in all, and these muscles are yet the seat of frequent painful cramps. 2 have, beside the joint pain, very sharp darting pains in the forearms and wrists, in the course of the nerve trunks, associated with some loss of power and weakness of grasp. In 2 others[1] severe burning in the soles of the feet, alternating with numbness and tingling in the feet and hands, is sometimes felt simultaneously with the arthralgia.

Very painful and persistent inframaxillary neuralgia is present in 2 of the 15. Neither has carious teeth, and each has had several sound teeth extracted without the pain ameliorating. Aching in the right clavicle frequently accompanies the arthralgia in 1. General muscular aching and loin pains persist in 3. It is believed that inflammatory conditions of the joints, such as redness, heat, or swelling, at no time occurred in these cases. They were frequently searched for. The pains in nearly all are aggravated by night. Damp and cold weather increase them in 5.

I was recently able to ascertain the state of cutaneous sensibility in 8. Some anæsthesia was present in the area supplied by the peroneal nerve and its terminal branches in 2; there was plantar anæsthesia in 2 others; in 4, sensation was normal or hyperæsthetic in the painful extremities. No tendinous swellings about the wrists, or elsewhere, were noticed in any.

It is difficult to decide as to the exact influence of lead in the production of the arthralgic pains in these cases. Their character and seat, and their continuance in those that received no eliminative treatment, and that yet show evidence of plumbism, suggest they are in most of the 15 a mild form of the articular and muscle pains which were present in 47 of the 64 when these cases were thoroughly investigated over a year ago. Our knowledge of the peculiar morbid state underlying so-called lead arthralgia is too slight to permit us to assert that the same pathological conditions always exist. In most of the 47 the symptoms were originally those of aggravated neuralgia of the joints, bones, and intramuscular nerves. In not a few who were under observation for a considerable period and received no regular treatment, while the arthralgic pains were prominent, there were present symptoms suggestive of neuritis, such as sharp pains in the muscles and in the limbs in the course of the nerve trunks, often with decided tenderness on deep pressure; alterations in sensibility such as paræsthesia, hyperæsthesia, and anæsthesia; weakness in the limbs; rigidity, and frequent cramps in the muscles.

The electrical reactions were taken in several of these cases, but no quantitative or qualitative changes were found. The examinations, however, were made at too early a period for the negative result to be of much value in the diagnosis of the condition.

In none did the character of the symptoms suggest that the pains were of a gouty nature, nor do they now in the 15 under consideration. The smaller joints were unaffected, and no inflammatory appearances accompany the pain in the large joints. It is not unlikely that slight deposits of urates may occur in a joint, and no appreciable objective phenomena at once arise. Yet this condition could scarcely continue long without an inflammatory outbreak. There is no doubt that a special predisposition to gout exists in subjects of chronic plumbism, and it is not improbable that slight joint pains, with aching in the limbs, and muscular cramps, ephemeral neuralgias, headache, vertigo, and mental depression, occurring in such subjects, are sometimes symptoms rather of the gouty or lithæmic state induced by lead than of the direct action of that metal. Where doubt is felt, it is of diagnostic importance to examine the urine and blood-serum, quantitatively, for uric acid. I have, as yet, been unable to do this in any of the 15 arthralgic cases. It was probably excreted in deficient amount in at least 2. The urine of these has been more or less scanty, since pronounced symptoms of plumbism were present; it often deposits urates, and fits of the gravel occur. An unsuccessful effort was made to get specimens.

At the date of the preparation of the clinical analysis of the 64 cases, complete paralysis of the extensor muscles of the forearms (typical wrist-drop) had occurred in but 2; bilateral weakness of the extensors of the fingers existed in 1 other, and in 2 others there was slight loss of power in all of the extensors of the fingers and of the wrists, without actual paralysis. In the third-mentioned of these cases (1 of the 44) complete forearm extensor paralysis afterward occurred. In the 2 last mentioned the ataxia disappeared without paralysis ensuing. So that complete wrist-drop was met with in but 3 of the 64 cases, and it was not encountered in any of the other (15) cases of the chrome yellow poisoning traced to the same source, of which I have notes. This exemption among so many cases of pronounced plumbism in which the rarer condition—encephalopathy—occurred so frequently, is quite remarkable.

In none of the 3 cases did the paralysis extend to the upper arm or involve the supinator longus. Complete recovery has taken place in 1. In 2 of the cases power has been partially regained in the extensors of the wrist, so that the hand can be incompletely extended if the fingers are flexed into the palm, but the extensors of the fingers and thumb in both cases are yet too ataxic more than very slightly to extend these members or the hand itself

[1] The plantar surfaces in these cases were somewhat anæsthetic.

if the fingers are first passively straightened at the metacarpo-phalangeal joint. The paresis is greater on the left in 1; in the other, it is equally marked on both sides. Sensation is unaffected. Considerable atrophy exists in the situation of the paretic muscles in each case. Neither would come for electrical examination. It is presumed reactions of degeneration are present. 1 case is known to have taken for some weeks potassium iodide; the other received no treatment.

In 1 of the 44 in which typical paralysis agitans has developed, presumably as a result of lead poisoning, there exists, in consequence of weakness and stiffness of the forearm muscles, lack of complete extension of the hands and fingers on the wrist, more marked on the right. This case is of especial interest and worthy of detailed report, because it is generally supposed that although lead may occasionally originate tremor resembling somewhat that of paralysis agitans, the typical "shaking palsy," of Parkinson does not arise in consequence of poisoning by that or other metals.

Mrs. Mary McF.,[1] aged sixty-one years, occupation general housework. One of a family[2] of seven all of whom were severely poisoned from the same source. She had eaten the chrome yellow buns for nearly a year before symptoms other than cachexia, constipation, arthralgia, and slight colic, appeared. In June, 1886, she was seized with recurrent attacks of lead colic, lasting four to ten days, with intervals of about one week, during which slighter abdominal cramps, with nausea, vomiting, and constipation persisted. I visited her frequently in June and July, while investigating other cases of poisoning. All were studied with great care and it is absolutely certain that she was free from tremor then and before. In addition to colic, which persisted through the summer and autumn, attacks of generalized headache were now present with neuralgic pains in the joints and limbs. She lost flesh and strength, was depressed mentally, and sleepless. Tremor of the right hand and fingers was first noticed early in October, while plumbic symptoms were yet prominent. It was then slight and inconstant and appeared usually after mental or physical fatigue, but ceased on voluntary effort, by exercise of the will and during sleep.

I now lost sight of her until September, 1888. Since then she has been under constant observation. The following are the additional facts in her case from October, 1887, to the present.[3] She at no time received continuous treatment directed toward eliminating the lead. I had endeavored to persuade her to take potassium iodide. After a five days' trial she desisted, believing it aggravated colic and headache. Her health had always been robust until she suffered from plumbism. She had never had tremor before, nor had she ever received a physical injury or mental shock. No hereditary history of any neurosis is obtainable. Her people were sturdy Irish, who died rather of old age than of any disease. Umbilical colic and severe loin pain yet occur intermittently. She is dyspeptic and constipated, and has a marked blue line, with retracted gums and discolored teeth. Her skin is earthy-yellow and conjunctivæ are icteroid. There has been quite constant headache since the autumn of 1887, but it is less pronounced now than during the preceding winter and spring. Its situation is at times frontal and occipital but it is usually severest about the vertex. It is sometimes a deep-seated heavy ache, at others it is sharp and shooting. Recumbency and the approach of night greatly aggravate it. Sleeplessness and restlessness continue and she is disturbed at night by dreams of so frightful a character that she rouses the neighbors by her shrieks.

Tremor of the right hand and fingers increased rapidly in degree, and extended to the forearm and arm soon after its appearance. By the third month the right foot and leg were noticed to shake while she was seated. Seven months later (August, 1888), fine tremor appeared in the left lower limb. The facial muscles, and those of the tongue, eyeballs, neck, and left upper extremity, are entirely free from even slight tremor. The right upper extremity, especially the fingers and hand, is in a continuous state of almost uniform, coarse movement, which ceases instantly and absolutely—though momentarily—when voluntary effort is made with it, such as buttoning or unbuttoning the dress. If the effort is continued, after a few moments the tremor returns slightly, and it starts into redoubled violence on cessation of the effort, unless it be carried to complete and lengthy exhaustion of the arm muscles. Thus, having found that the constant jerking prevents sleep, she has for several months been in the habit on retiring of tossing the right arm about sometimes for hours, until, from sheer muscular weariness, tremor is no longer perceptible and sleep comes. It ceases absolutely during sleep. Mental excitement greatly augments it. All efforts of the will directed to control it are now ineffectual, and, indeed, rather increase it. If the tremulous hand is forcibly held, the movement becomes more violent after a moment, and tremor then appears in the opposite arm, and if she is sitting, that present in both legs grows coarser.

Her handwriting is suggestive. Always disliking writing, she had not before held a pen for years. This renders the zigzag character of the strokes in the specimen more interesting. For, were she used to the pen, the tremor, which ceases momentarily on voluntary motion, would perhaps have permitted her to complete the few words before it reappeared. As she is unaccustomed to writing, the will does not readily direct the hand. The movements are deliberate and the up and down strokes slowly and somewhat hesitatingly made. Time is therefore afforded the tremor to recommence.

[1] This case recently visited me several times in the medical clinic of the Jefferson College, and was shown by Prof. Da Costa to the class. I may state he is fully in accord with me both as to the diagnosis and as to the probable origin of the disease from lead poisoning.

[2] 2 of the 3 cases of wrist-drop occurred in this family.

[3] November 15, 1888.

Muscular weakness, stiffness, and some fixation of the limbs are present, but are not yet nearly so characteristic as the tremor. The grasp as measured by the dynamometer at different times recently, varied between 15 and 33 with the right hand, and between 35 and 40 with the left. Incomplete extension of the hands and fingers seems to be due largely to rigidity of the flexors, as force is required to extend passively the fingers at the metacarpo-phalangeal joints. The forearms are slightly flexed and stiffened at the elbow. There is some rigidity of the anterior cervical muscles, and muscles of the shoulders, which slightly inclines the head forward and causes stooping. In the inferior extremities the rigidity is greatest at the knee-joints and in the adductors of the thigh; more marked on the right.

Voluntary movement is slow, but the gait is as yet not festinating, nor is there propulsion. The facial muscles are unaffected. There is no festination of speech; articulation is slow rather than rapid, but it is monotonous and not syllabic. She is said often to "mix" her words. This I have not noticed. The knee-jerk is exaggerated on both sides. There is no ankle-clonus. Muscular nutrition is poor. The mechanical irritability of the muscles is increased, and there is quantitative diminution to both galvanism and faradism, especially the latter. This is most pronounced in the extensors of the forearms and in the right deltoid, but it is throughout more marked on the right side. Sensations of heat are absent. A feeling of constant chilliness has been present for nearly a year. It was as great during the summer as in cold weather.

Tactile sensation was carefully taken on three separate occasions, and, contrary to what is the rule in this disease, it was twice found very decidedly impaired. This was manifest on all surfaces of the arms, shoulders, and legs. It was not taken on the trunk or thighs. The whole surface of the right upper extremity was especially anæsthetic. This condition was noted in September, and again in the early part of October, 1888. Six weeks later, on casually retaking sensation in the finger-tips and hands, I was surprised to find the anæsthesia had disappeared. The cause for this is not clear. It is, however, unlikely that the loss of sensation had any direct dependence upon the paralysis agitans. Most probably it was of plumbic origin, had existed for some time, and was in process of disappearing when she came under observation this autumn. Lead was found in her urine in August, 1887. Albumin and sugar are absent.

The eye-ground was recently examined by Dr. Hansell, who reported: "R. $\frac{20}{XL}$; L. $\frac{2}{CC}$; opacities in cornea; double optic atrophy with choroidal ring and slight cup. The arteries and veins are small. Pupils normal."

Mental and physical depression is still a constant symptom in 10 cases. Headache is present in 8 of these, which before plumbic symptoms appeared were free from it. In several it is described as a diffused, deep-seated ache. In 3 it is severest in the frontal and occipital regions. In all of the 8, until quite recently, it was constant, with exacerbations and remissions. It is now of far less severity than formerly.

In 5 of the 8 the urine was examined for albumin, but with negative results. In one of these cases (Mrs. S.) in whose urine considerable lead but no albumin was found a year ago, and who had for months epileptiform convulsions of undoubted lead origin, subacute mania developed with hallucinations of sight and hearing and delusions of persecution. This condition still exists. In another (Mrs. G. W. L.), last seen in September, 1888, an eye-ground examination disclosed œdema of the temporal side of each nerve and tortuosity of the veins. Headache, worse at night, has been constant with her for more than a year. She now is melancholic, and has delusions of conspiracy. There are restlessness and sleeplessness at night and bad dreams. Her skin is sallow. The gums and teeth are still discolored by lead. There are arthralgic pains; dyspeptic symptoms; complete anorexia; a tense, full pulse; overacting heart, with a markedly accentuated aortic second sound. Her urine, recently examined, was of low gravity, but contained no albumin. Lead was not sought for, as the quantity furnished was small, and she would not take potassium iodide.

One other of the 5, a girl, aged seventeen years, had an attack of chorea, during January, February, and March, 1888, while decided cachexia, colic, and the blue line were yet present. She had never had rheumatism, and no family history of it or of chorea can be elicited. Her heart was functionally disturbed, but there was no murmur. None of these 3 cases received any regular treatment.

Curious spells of generalized tremor, of brief duration, have occurred in 1 of the 44 (Mrs. D., aged thirty-eight years), for the past sixteen months. An attack consists of a sensation of numbness starting in the wrists, and rapidly spreading over the body. There is then a feeling of impending danger, and immediately coarse, uncontrollable tremor seizes the head and limbs and continues for a half-hour or longer. Profuse diuresis generally takes place on its cessation. There is no loss of consciousness or tendency to spasm. The fit is not hysterical, nor are there at any time indications of the hysterical state. Motility and sensation are unaffected in the intervals. They were not tested during or immediately subsequent to one of the seizures. These spells occur about every three to five weeks irregularly; not at the menstrual period. Appropriate remedial measures directed to prevent their recurrence have the desired effect when pursued with regularity. She will not continue treatment sufficiently long to be entirely rid of them. This woman had con-

vulsions in April, 1887.[1] Five of her children were similarly affected about the same time, and four died.[2] Another was born in May, 1887, while symptoms of lead poisoning were yet present. This infant was undersized and cachectic at birth, and, though not suckled by the mother and every effort was made to raise it, it did not thrive. When aged four months, rhachitis developed; paroxysms of laryngismus stridulus were frequent, and death took place in convulsions in the tenth month.[3]

The appearance of the gums and teeth in 24 of the 44 cases is yet indicative of plumbism. But 3 of the 24 received eliminative treatment. A decided though fading blue line is present in 10, a distinctly bluish-purple line in 5, and a purple in 9. In 12 of the 24 there is much retraction and atrophy of the free margin of the gum, permitting considerable exposure of the neck and fang surfaces of the teeth, which, together with the crown surfaces, in the greater number of the 24, are yet discolored by lead sulphide. The free margins of the gum in many of the 24 are hemorrhagic. In these, slight friction causes venous oozing. The purple line is present in the situation previously occupied by the blue. In many of the cases I have watched this discoloration of the free gingival margin through its varied phases. It is of diagnostic interest to note that at first the so-called "line" consists of a number of fine black dots irregularly distributed, or an aggregation of them, forming a narrow bluish-black streak in the interdental portion of the gum, or in the extreme edge of the free margin, grasping one or more teeth, usually the lower bicuspids and molars, the teeth which are apt to be longest in contact with particles of food and about which decomposition of food elements is likely to be greatest.

Friction renders the pigmentation more distinct and perhaps causes slight hemorrhage. If the poisoning is slight and the absorption of lead ceases, the pigmentation slowly fades without destruction of the affected edge of the gum and no retraction of the gingival margin occurs. In several cases, three months after the lead ceased to be ingested, the narrow black streak or the fine dotting in the thin edge of the gum was distinctly visible, and at the end of a year the same thin edge was of a purple color.

Continued absorption of lead in considerable quantities produces an intense bluish discoloration of the buccal gingival margin several lines in breadth in the gums about the teeth in the upper and lower jaw. The lead sulphide, deposited in the lumen of the vessels, in their walls, and in the perivascular tissue, interferes with the nutrition of the affected portion of the gum and leads to its partial atrophy. The gums become exceedingly hemorrhagic so that the slightest friction causes venous oozing. Their dental margins in some situations become, after a time, fringed, and retracted from the neck of the teeth, exposing a part of the fang. When the blue line is decided, the crown, neck, and the denuded fang surface of the teeth are apt to contain a black deposit of lead sulphide, which persists for months after exposure to the poisoning has ceased, and then gradually fades, giving place to a yellowish-brown stain.

At a variable period following the cessation of the systemic absorption of lead, the extent depending largely upon the severity of the poisoning and whether efforts have been made to eliminate the metal, a bluish-purple discoloration succeeds the bluish in the affected portion of the gum, and it, in its turn, is succeeded by a purplish, and this by a red line entirely without any element of blueness.

In conclusion, I desire to express my indebtedness to Dr. Leffmann for examining the urine of a number of the cases for lead, and to Dr. Hansell for eye examinations.

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[1] Her urine was slightly albuminous at that time. The albumin disappeared very soon after treatment was began to eliminate the lead, and has at no time been present since.

[2] *Vide* "Notes on Some Obscure Cases of Poisoning by Lead Chromate," THE MEDICAL NEWS, June 18, 1887.

[3] All of the five infants born of mothers exhibiting symptoms of lead poisoning during gestation had convulsions; four within two months after birth. Three of the five died in them. Another infant, born in July, 1888, of a mother who had pronounced lead poisoning during the early months of pregnancy, died in the fourth month in convulsions.

YELLOW FEVER.
AN EXPERIMENTAL RESEARCH ON ITS ETIOLOGY.[1]

BY PAUL GIBIER, M.D.,

ASSISTANT TO THE CHAIR OF PATHOLOGY OF THE MUSEUM OF PARIS, EX-HOUSE PHYSICIAN OF THE HOSPITALS OF PARIS, ETC., ETC., ENTRUSTED WITH THE MISSION OF STUDYING YELLOW FEVER BY THE GOVERNMENT OF THE FRENCH REPUBLIC.

IN the beginning of 1888, I presented simultaneously to the Academy of Sciences of Paris and to the Academy of Havana, the result of the researches that I had undertaken on yellow fever, begun in the month of November, 1887. Since that time I have given a lecture on the whole of my work on the subject to the Academy of Medicine of Paris.[2] In September, 1888, in consequence of these studies, the French Government, which four times before had honored me with its confidence for different medical investigations, commissioned me to go to Florida and study yellow fever which was prevailing there at that time.

[1] A paper read before the New York Academy of Medicine, January 17, 1889.

[2] *Vide* Bulletin Médical, of Paris; THE MEDICAL NEWS, The Lancet; Cronica Medico-Quirurgica, and Revista Clinica of Havana, etc., 1888.

When I arrived at Jacksonville, Fla., the epidemic had begun to diminish, but nevertheless, thanks to the courtesy of Surgeon-General Hamilton and of Dr. Porter, chief of medical relief at Jacksonville, I was able to examine as thoroughly as possible several subjects who died in the town, or in St. Luke's Hospital, where I had located my laboratory.

Before presenting the details of the cases I have observed, it will perhaps not be useless to examine a question which many physicians have asked themselves, and which they do not consider as being settled, viz.: *Was it veritable yellow fever which was observed last year in Florida, and in a few localities in the surrounding States?*

The relatively small mortality, and also the fact that the blacks were attacked in larger proportion as compared with the whites, have been the cause of these doubts. However, it is proper to remark that if in the West Indies they consider the black and even the mulattoes as having immunity from yellow fever, in the epidemics which have prevailed in the United States, on the contrary, the disease has been observed as well among the blacks as among the whites. (New Orleans, Memphis, Savannah, etc.) Moreover, in Jacksonville, a few days after the outburst of the epidemic, most of the white families left the town, comparatively few but negroes remaining. I shall add that it was remarked that, generally, the symptoms were less grave in the latter, and the fatality less considerable than amongst the white people.

Whatever it may be, I do not think that the question ought to be so simply stated; and according to my opinion, it is more complicated; and I think it is necessary to examine:

1st. If it was really yellow fever which was observed in the last epidemic at Jacksonville?

2d. In case of a negative reply, if it was a new disease?

3d. If all the cases registered were genuine? In other words, if there were not at the same time several kinds of fevers, as bilious, dengue, or malarial fevers more or less grave; and

4th. If yellow fever might not have assumed (at least in a certain proportion of the cases) a kind of hybridity, owing to the malarious character of the country?

Relying upon my observations, I will endeavor to answer briefly and in a general manner—not in detail—these several questions.

In limine I present it as a fact that many cases of yellow fever were observed in Jacksonville. For my own part, I have seen some cases absolutely characteristic, judged as well by the symptoms as by the anatomico-pathological lesions.

But it is not irrational to admit that a concomitant epidemic of bilious fever and many cases of malarial intoxication have existed simultaneously with yellow fever. On the sixteenth of November I made, at St. Luke's Hospital, the examination of a black subject who died on about the ninth day of his disease. I found the bowels normal; the liver was black instead of presenting the special color; the spleen was hypertrophied. I have no doubt that the patient succumbed to bilious fever; but, however that may be, it is certain he had not yellow fever.

At the temporary hospital (Sand Hills Hospital) Dr. Solace Mitchell showed me the thermometric charts of the patients, and in the greater number of them we noticed, by the intermittent form assumed by the fever (however the case terminated), that the paludal element awakened by the recent disease had stamped, as it were, its mark upon it, and made it assume one of those *hybrid* forms to which Prof. Verneuil, of Paris, has called attention.

It is likely that the cases, in diagnosticating which the observer hesitated, have been found, not in the centre of the town, but in the suburbs, and on the opposite side of St. John's River (South Jacksonville), where the sanitary condition is not calculated to preserve the inhabitant from malarial fermentations. It is easy to come to such a conclusion in view of the great number of shallow pools into which, as on the Ganges' shore, the neighbors throw their dejections. Observation VII., which I report hereafter, concerns a case which took place, precisely, in one of these localities; it seems, in my opinion, to belong to the category of pernicious fevers.

Before continuing this exposition I think it is necessary for me to quote the bacteriological observations that I have made. I regret having but a few cases to present; nevertheless these are interesting facts, and I may already say that they confirm entirely the more numerous observations that I recorded in Havana, at the end of 1887 and in the middle of 1888.

The *modus operandi* has been as follows: The substances which have been planted in cultures have been handled with all the precautions that are required; the liquids with sterilized Pasteur's pipettes and the solids (visceral matters) by means of a process that I have invented and which I will describe briefly. I obtain matter from the interior of a viscera by the use of a curette analogous to those which are employed for scraping the cervical cavity of the womb, with the difference that my instrument is curved instead of being straight. I cauterize, with a heated wooden-handled spatula, the viscera recently removed from its natural cavity, at the point into which I shall introduce the instrument, after having passed the latter through the flame. I plunge it into the parenchyma, revolve it several times, and withdraw it filled with pulp, which is then mixed with

dissolved agar-agar or gelatine. The rest of the operation is executed as usual. If the post-mortem is performed far from the laboratory, I dilute the pulp obtained by the scraping with sterilized water, which is used afterward for the cultures on plates, the Esmarch's tubes, or in the Gibier's matrasses.[1]

A large quantity of tissue may be planted in that way, and if the organs contain cultivatable microbes[2] it is almost impossible not to obtain a great number of colonies.

Obs. I. and II.—The pieces taken in the first two post-mortems have been altered because of the delay, caused by the quarantine, in receiving my instruments, which got to Jacksonville eight days after my arrival. I notice these two cases, observed at the Sand Hills Hospital, only in order to relate that they presented the characteristic lesions of yellow fever.

Obs. III.—St. Luke's Hospital, Nov. 2, 1888. Man, forty-two years old (white). Autopsy immediately after death. Taking urine from the bladder, blood from the heart (right and left ventricles), bile, and hepatic, splenic and renal substances, and black intestinal matter, I made cultivations of them. This is the summary of the results given by the cultures: Blood, sterile; bile, sterile; urine, sterile; kidneys (two Esmarch's tubes), first tube, sterile; second tube, one colony of a small micrococcus. The liquid at the bottom of the tube, although clear, contained some large and long bacilli. Spleen, three colonies of a large micrococcus. Liver (two Esmarch's tubes), one tube sterile, the other contains four colonies of large and long bacilli. *Intestinal contents:*, black, neutral, different microbes in the cultures, but none dissolving the gelatine.

Remarks.—In this observation, the intestine did not contain the bacillus I found in such large quantity formerly in Havana. If this bacillus is really the cause of yellow fever, we must admit that, under still unknown influences, it may disappear after having produced the special intoxication. The same phenomenon is observed in a large proportion of cases of Asiatic cholera in regard to the comma bacillus of Koch. It may be thus satisfactorily explained in an affection which has lasted eight days.

As in my former observations, the blood did not contain any microbe. I shall add that the microscopical examination of it showed nothing abnormal either in the fresh state, or in desiccated or fresh, variously colored preparations. *It has been the same in all my observations without any exception.*

As for the different microörganisms which developed in the cultures in the viscera, the number of the colonies was so small, and so various their composition, that we may admit that an accidental infection took place during the manipulations. But with the cultures in solid *media* there is no reason to fear the same errors as with the liquids. In the same conditions a liquid *medium* would have been full of organisms which would have developed freely. In the solid *media*, on the contrary, a germ fortuitously introduced (during the various manipulations undergone by the preparations) remains where it is caught, but cannot invade the whole of the culture. If a microbe does exist, which might proliferate primarily in liquid and not in solid *media* (which as yet has not been seen), this microbe could multiply easily in the bottom of the Esmarch's tubes, where, after coagulation of the agar-agar, a certain quantity of bouillon accumulates always.

Although I admit (as I have in my preceding publications) the introduction of the microörganisms into the viscera, as a possibility, owing to the alterations of the mucous membrane, I consider the cultures of the liver, of the spleen, and of the kidneys of the preceding observation as having remained sterile.

Obs. IV.—Duval Co. Hospital, November 3. Man, forty-five years old (white). Carried to the hospital in a semi-delirious state, increasing till death. Antecedent history obscure.

This case, for which I am indebted to the kindness of Dr. Drew, attending physician, did not present any characteristic anatomico-pathological sign. Post-mortem one hour after death. The skin and the subcutaneous cellular tissue presented a yellowish coloration. The urine, which could not be examined during the short sojourn of the patient in the hospital, taken and analyzed after death, contained a large amount of albumin. No possibility of knowing if the patient was catheterized before his admission into the wards. A muco-purulent discharge from the urethra. The bowels were almost empty, no congestion; the colorless matter which clung to its walls was neutral. The stomach, the walls of which were injected, contained a small quantity of a brownish liquid with some dark particles. Kidneys congested. Liver brown.

Some cultures were made with blood, bile, urine, kidneys, spleen, liver, and gastric and intestinal contents. Results of the cultures: *Blood:* sterile. *Urine*: a few colonies, a *micrococcus* of a medium size, growing on the surface of the agar, small colonies, poor, irregular, not liquefying the gelatine. *Bile:* rare colonies of a *torula* growing slowly. *Spleen:* four colonies of a large *micrococcus* and a colony of a mycelium (accidental infection). *Kidneys:* sterile. *Liver:* sterile. *Stomach* and *bowels:* common microörganisms. Do not liquefy the gelatine.

Remarks.—It is very doubtful if this patient succumbed to yellow fever.

Obs. V.—Case kindly furnished by Dr. Webster. Woman, thirty-five years of age (slightly colored,

[1] *Vide* on these matrasses: Bulletin Academy of Medicine of Paris, September, 1888, and Journal de l'Antisepsie, Masson, Publisher, Paris.

[2] With a smaller curette the same process may be used for experimental work generally, and especially in tuberculosis, with the viscera of small animals, as the guinea-pigs.

"octoroon"), died at the jail, after four days' illness. She had presented the characteristic symptoms of yellow fever (black vomit, large amount of albumin, etc.).

Nov. 7. Autopsy, eight hours after death. Icterus very intense; yellow coloration of the adipose tissue. Liver: "nutmeg" or "café au lait." Spleen small. Kidneys congested. Bladder empty.

The stomach and bowels contain a large amount of black liquid, *acid* in the stomach but decidedly *alkaline* in the small intestine and neutral in the large. Cultures of blood, kidneys, liver, spleen, and intestinal contents. The cultures of the blood remained sterile. The kidneys, the spleen, and the liver contained a certain number of *diplococci*, the colonies of which spread quickly over the surface of the agar-agar, under the semblance of a semi-transparent cloud; they dissolve the gelatine very rapidly. It is the first time I saw this microörganism. I did not find it in the bowels. It is also the first time that I found a microbe in the parenchyma of the viscera of a subject dead with yellow fever; but I must call attention to the fact that the autopsy was performed eight hours after death, in a surrounding temperature relatively high (the interior of the subject was still warm); all conditions very propitious for the growth of the bacteria of decomposition.

Some particles of the contents of the bowels, taken from different parts of the digestive canal, were diluted with sterilized water, and with them I made cultures on gelatine in my matrasses. Notwithstanding the large dilution, the colonies were so numerous that after twenty hours the gelatine was entirely dissolved in the first two matrasses. In the third (fourth dilution) on 106 colonies I counted 98 which liquefied the gelatine.

I call attention to the importance of this fact: *all those liquefying colonies were formed by the microbe that I had isolated in Havana.*

Obs. VI.—St. Luke's Hospital, November 13th. White man, forty years of age. Died the eighth day of his illness, after having presented the classic symptoms of yellow fever. Autopsy one hour after death. Cultures with blood, urine, kidneys, spleen, liver, intestinal contents, which were black and slightly *alkaline.*

Results.—The cultures of the blood, of the renal, splenic, and hepatic pulps, remained absolutely sterile. Cultures of the urine contained some colonies of micrococci, but I must add that the patient was catheterized several times at the hospital.

The cultures of the contents of the bowels taken, as usual, from differents points, presented only common microbes.

Remarks.—This seems to have been a genuine case of yellow fever, but the pathogenic *bacilli* had disappeared from the intestine when death supervened.

Obs. VII—Nov. 14. Case due to the courtesy of Dr. Kenworthy. Man, thirty years of age (black), living in the swampy locality of South Jacksonville. The day before, twenty-two hours before succumbing, he had a violent chill, followed by a very high fever (109° F., axillary). A few days before, he had a slight indisposition but recovered.

Autopsy at 4 o'clock in the evening, one hour and a half after death. The liver seems normal, the heart also; kidneys very congested, spleen moderately hypertrophied; urine very albuminous. The intestine contained a whitish matter moderately abundant, alkaline, and the stomach a small quantity of slightly colored liquid. No congestion.

Cultures made with blood, spleen, liver, and intestinal matter. It was not possible to obtain urine.

Results.—The cultures of the blood, of the kidneys, of the spleen, and of the liver, remained sterile. The cultures of the intestinal contents were strewn with colonies almost exclusively composed of large and long bacilli, which did not dissolve the gelatine. Their colonies grew at the surface of the plates, with the aspect of a light pellicle, more or less irregular, and in the interior of the medium of the culture they were regularly spherical.

Remarks.—This seemed to have been a case of pernicious fever; albuminuria is observed in those fevers, as well as in the grave form of bilious fever, and in yellow fever; this symptom cannot, consequently, be used as an absolute criterion for the diagnosis. The indisposition which preceded a few days before, was likely a slight form which appeared before the fulminant access. It is not usual to see yellow fever striking down so suddenly its victims.

Now what is the value of the long bacillus found in the intestine? I cannot tell at present. I report the fact, only, with the hope it may guide some other researches.

After having related the preceding observations, it remains to draw some deductions from them. At first, I recognize that the number of my bacteriological analyses, in this second series, is very limited, especially if we consider that, of the five, I have hardly three undoubted cases. However, is it not remarkable to see that of these three cases (Obs. III., V., VI.) that in which death was more rapid (four days, in Obs. V.) was the one in which the intestine contained the black and characteristic matter, and presented, in such an extraordinary abundance and almost exclusively, the same bacillus which I have seen in several yellow fever subjects in Havana?[1]

I recall the fact that I discovered this microbe first in some Spanish soldiers who died with yellow fever in the military hospital of Havana, and, several months after, in some foreign sailors who succumbed to the same disease in the civil hospital of the same city. I did not find it in subjects dead with other diseases in the latter hospital. Now, after a year, I find it again, as it were, in the state of a pure culture, and in great abundance in the intestine of a subject who presented the symptoms and lesions of genuine

[1] After my first investigations had been published, Dr. G. M. Sternberg also found the same bacillus in three cases of yellow fever in which he looked for it. (*Vide* Cronica Med. Quirurg. de la Havana, June, 1888.)

yellow fever, and this in Florida, at Jacksonville, several days' journey from Havana.

I recall, also, that the cultures of this bacillus exhale an odor quite similar to that which I have remarked several times in black vomit; also, that its biological qualities are entirely in accord with the physiology of yellow fever itself, and in certain conditions I exposed formerly, it blackens the bodies it comes in contact with, so much so that some liquid cultures have the appearance of the matter of black vomit. But I am far from pretending, although it has been claimed, that the last character, no matter how suggestive it may be, is pathognomonic. Of course, my attention was attracted by this melanogenous property—which, however, does not always appear—but I was, above all, struck by the very considerable quantity of the bacillus in one of the first cases I analyzed.

Thus, I think I am right in saying that the presumption that this bacillus is the cause of yellow fever tends to become a certainty.

Besides, I must notice that in the cases in which autopsy took place early after death—as well in Havana as in Jacksonville—the blood, the liver, the spleen, and the kidneys have been constantly found free from microbes. This fact strengthens the theory that I have supported, viz., that yellow fever is an intestinal infection which must be treated *from the very beginning* with the evacuants and disinfectants of the intestines, as bichloride of mercury, naphthalin, and tannic acid.

However, two objections may be presented, which I must answer: How is it that the microbe, supposed to be pathogenic, is not found in every case after death, and, if it has disappeared, how shall we explain the persistence and the aggravation of the accidents? Secondly, if yellow fever is a disease, the germ of which grows exclusively in the intestine, how shall we explain albuminuria? Let us examine the facts.

We do know that when a microôrganism has saturated any medium of culture, its growth stops. If another microbe is introduced, and grows in the medium transformed in that way, the first often disappears. This could explain the possibility of the disappearance (at any variable moment) of the microbe of yellow fever. I propose, at the very first opportunity, to analyze the dejections of several patients from the first day to the last. I should not be surprised to find my microbe only in the first period of the disease, at least in a certain number of cases.

As to the persistence, and eventually the aggravation of the accidents, they, in all probability, depend upon the more or less grave import of the lesions. The latter are due to the poisonous products, to the ptomaines secreted by microbes and absorbed by the bloodvessels of the intestine, and more especially by the radicles of the vena porta.[1] We know that though the microscope and the cultures show the absence of bacteria in the liver, this gland, into which the blood of the vena porta first flows, undergoes, nevertheless, a fatty degeneration analogous to the one observed in certain cases of poisoning *per ingesta*. The spleen, on the contrary, is of normal appearance, unless there is malarial complication or secondary infection. And, if the kidneys are congested and give passage to albumin, it does not mean that they are directly attacked by the bacteria; in typhoid fever, for instance, which may be considered as an infection primarily intestinal, albuminuria is observed without finding in the urine, at least in the beginning, the specific bacillus so easy to ascertain otherwise. Certain kinds of poisonings, also, produce albuminuria (lead, phosphorus, cantharides, etc.).

Before finishing, I desire to remark that in my examinations I have ascertained that the contents of the intestine were alkaline or neutral; they were more decidedly alkaline in Case V., in which my bacillus was so abundant. I believe that the coloring matters contained in the intestine must contribute to induce observers to commit many an error on this subject; these matters color the test-paper yellowish-red, but they do not always discolor the same chemically. I do not pretend, however, that the intestinal contents might not prove acid (but then my bacillus would have disappeared from the intestine).[2] I once observed, in the civil hospital of Havana, on a subject who died from a mitral affection, that the intestinal contents were clearly acid, whilst the liquid contained in the stomach was alkaline. The post-mortem was performed an hour, or two at the most, after death.

It would be of the greatest interest to continue these researches. The experiments I have made on my bacillus have already given the explanation of the fact that yellow fever remains endemic on the seashore of hot countries and not in the interior; and of this other fact also, that an infected vessel may hibernate in glacial regions without losing the property of communicating yellow fever when she returns to a hot zone.

Other experiments, which I intend to publish later, induce me to think that, if the bacillus in question is really the cause of yellow fever, it would not be impossible to protect against that terrible disease the populations of the countries exposed to the epidemics.

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[1] As in poisoning by venomous mushrooms, notwithstanding the evacuation of the ingested substances, the visceral lesions are produced, and sometimes cause death.

[2] This bacillus does not live in an acid medium. This may be another cause of its disappearance from the intestine.

A CASE OF ADDISON'S DISEASE.

REPORTED BY R. W. GARRETT, M.D.,
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OWING to the rarity of this disease it is very seldom an opportunity is afforded for observing the clinical history of a typical case; and it is still more rare to be able to follow up such a history with an autopsy. Under the circumstances I thought a publication of a synopsis of notes taken by his medical attendant and myself, together with the results of the post-mortem and microscopical appearances of the structures involved, would prove interesting as well as instructive.

M. D. S., aged thirty-four, five feet seven inches high, married, of a stout, strong, athletic build, muscles highly developed, chest broad and deep, and other appearances of an unusually well-proportioned young man. Family history excellent. As a child, he always had good health, having had no serious illness, except the usual diseases of childhood. During his early years he superintended his father's farm, but for the past six years he has been manager of a large sash and door factory. Up to the beginning of last July his health was excellent and with few exceptions was always able to attend to all the duties such a large concern would require of a manager. In addition he was a member of rowing, base-ball, and foot-ball clubs in each of which he took an active part, and for which his athletic build made him exceptionally fit.

Three or four times in the last few years he had an attack of diarrhœa with colicky pains lasting two or three days but in the intervals the bowels were quite regular. Nearly a year ago he had an attack of migraine for three days. Last June as an officer in the active militia he went to Gananoque, where in company with his battalion he camped for twelve days. During that time I had daily opportunities of seeing him, and I frequently heard him say that he felt remarkably well, that he had an enormous appetite, and his only trouble was constipation.

On July 2d, in the absence of his physician I was called to attend him for a mild attack of typhlitis lasting a few days and terminating in a copious diarrhœa. It was at this time I noticed a peculiar color in his face, a dull brownish look, but attributed it to the sunburn acquired at camp; I also noticed a weak pulse out of all proportion to the severity of his late illness.

Subsequently he picked up considerable under tonic treatment, but never regained his natural color. About the middle of August he was seen again, when he complained of weakness and disinclination for doing any kind of work; his face and hands were still discolored, eyes rather sunken, pulse small and weak, otherwise he seemed to be in good health.

These symptoms became intensified as time went on and, in addition there developed a restless, nervous condition.

On September 30th, in consultation, his case was carefully investigated and from notes taken I extract the following: body well-developed, muscles large but flabby, abdominal wall thickened; brownish discoloration of face and neck terminating abruptly above where the hat sheltered the forehead and below at the upper margin of the collar. Pigmentary deposits, irregular in outline, were also found in the right iliac region where sinapisms had been applied during the attack of typhlitis, also on the genitals, particularly the dorsum of the penis; the backs of the hands were also discolored while the palms were a light yellow tinge terminating abruptly where the coat-sleeve covered the wrist. With these exceptions the skin over the whole surface of the body was natural in color and feel.

The eyes were dull and lustreless, somewhat sunken, without pigmentary deposits, the sight normal. The tongue was clean; the mucous membrane of the mouth was of the ordinary color without any discoloration; the lungs perfect; the heart remarkably feeble in action, the systolic sound being almost wholly valvular. · Abdominal palpation and percussion gave negative results; pulse 100, weak, small and irregular; appetite poor, capricious, and there were frequent complaints of nausea but no vomiting. Absence of any appearance of œdema. Marked depression and enfeeblement of the nervous system with restlessness, the patient remaining quiet scarcely a moment; profound asthenia, out of all proportion to his general condition, with a tendency to faintness on sitting up. His favorite position was on the back, knees drawn up, the calf of one leg resting on the knee of the other, the position of the legs being reversed every five or ten seconds; great lack of energy both mental and bodily; feeling tired on the least exertion; loss of memory, particularly of recent events, for instance, he could not give an account of his symptoms—if asked if his bowels had moved that day would say "let me see," then would try to think, and in all probability would in a moment or two start to talk about something else, in fact, he could not recall any recent event without a distinct effort. Bowels regular and natural; urine normal.

During the remainder of his life (two weeks), the symptoms became intensified, except the bronzing which, in the opinion of all those who saw him, became lighter in shade. On the morning of the 13th of October, he had an attack of syncope which was overcome by hypodermatics of stimulants. The same evening, after a fairly good day, suddenly profound prostration set in, total inability to stir the body, or even move a finger; the extremities became cold, the wrist pulseless, and at 12.30, of the morning of the 14th, after swallowing a few drops of brandy and milk he expired from cardiac asthenia. His intelligence remained clear up to the moment of death. Duration of the disease three and a half months.

The treatment throughout was purely symptomatic, tonics at first, particularly quinine and nitro-hydrochloric acid. The nausea was always relieved by bismuth and cerium, and the attacks of hiccough he always checked by eating a few cold grapes. Stimulants did harm, increasing the restlessness and nausea. Any kind of a purgative caused profound depression. Twenty grains of potassium bromide with five grains of

Dover's powder always gave a quiet refreshing sleep, lasting throughout the whole night and well into the next forenoon; in fact, this combination acted like a heavy dose of a narcotic.

He became tired of every kind of food, except buttermilk which he drank in large quantities, always, he said, relieving the thirst and nausea.

In regard to the cause, there is none known, nor anything to which the disease might be attributed. It might be mentioned that six years ago he was thrown from a horse and fell on his back. Three years later an abscess formed in the region in which he sustained the injury. It was evacuated; healed up rapidly, leaving a depressed scar.

In company with Hon. Dr. Sullivan and Dr. Oliver, the attending physician, I conducted the post-mortem examination, and to Dr. Sullivan, who made copious notes, I am indebted for the following:

Autopsy, twelve hours after death, revealed marked rigor mortis. The body was muscular and well-formed, without the slightest evidence of emaciation. The only mark was a large circular, depressed scar over the right kidney, which marked the site of a former abscess. The bronzed color on the face, hands, genitals, and right iliac region had changed to a lighter shade.

The opening incision showed about one and a half inches of fat in the abdominal wall; the muscular tissue was healthy and well developed. The subperitoneal fat was abundant, and the omentum well covered with adipose tissue. The liver darker in color but normal in density and volume; the gall-bladder empty, contracted, and diminished in size. The spleen was somewhat enlarged, the pancreas and duodenum normal. The stomach was empty, shrunken, but healthy in structure. The small intestine was somewhat narrowed and slightly congested in parts; partially filled with liquid. It had a general bronzed appearance, very marked in some portions of the ileum, looking as if stained with bile, but contained much less flatus than usual.

The large intestine was healthy; there were some adhesions around the cæcum, indicating a former typhlitis, but the vermiform appendix was congested, firmly adherent to the caput coli, and diminished in size nearly one-half.

The suprarenal capsules were readily detected by their size and hardness, and were, along with the kidneys, carefully dissected out, together with a portion of the aorta. The kidneys were normal in size, the capsule peeling off readily, and on section were dark purple in color, but in no way affected in structure. The right suprarenal capsule was more than three times its normal size, irregularly nodular, and containing a substance arranged in compartments, having a uniform grayish-white, caseous appearance. The investing membrane was thick and dense. The left capsule had increased in size in a vertical direction, was harder, and had, in addition to the caseous masses, firm nodules, cutting with much resistance, and feeling almost like cartilage. There was much fibrous thickening in the neighborhood, extending to the solar plexus, semilunar ganglia, origin of superior mesenteric, and aorta. This fibrous new-formation surrounded the cœliac axis in a matted mass, narrowing the lumen of its branches, and when removing this mass with the aorta the nerves of the sympathetic could be seen like strings of catgut extending through it. Extending upward, the matting could be traced along the aorta toward the arch, but not downward.

Some few mesenteric glands in the neighborhood of the suprarenal capsules were enlarged, somewhat softer than natural, but macroscopically had no appearance of caseous degeneration. Except as stated, the peritoneum was healthy, not the slightest appearance of fibroid degeneration. Peyer's patches and solitary glands showed no changes.

A noticeable feature of the autopsy was the almost entire absence of blood; the vena cava, and other large bloodvessels were freely divided, but a small napkin was more than sufficient to keep the parts clean during the lengthened examination; the peritoneal cavity was more than naturally dry.

According to promise made to friends who granted the autopsy, the thorax and cranium were not opened, and for the same reason no extensive dissection was made of any of the abdominal organs.

Dr. Clark, superintendent of the Asylum for the Insane, kindly prepared and mounted several microscopical specimens taken from the right capsules, and from his notes I have extracted the following:

When the diseased organ was cut across, the grayish material formed the chief part of the mass, and there were scattered throughout this yellow masses larger than peas. Cretaceous particles were also apparent when the specimen was being prepared. Sections from the gray part showed it to be made up of irregular cells held together by a fibrillated structure. In the yellow bodies the fibrillæ were not apparent, the mass being made up of granular matter and degenerated cells.

52 JOHNSON STREET, KINGSTON, ONT.
December 1, 1888.

RESUSCITATION AFTER APPARENT DEATH.

BY A. H. P. LEUF, M.D.,
OF PHILADELPHIA.

WHEN a cell or number of cells die, it is called a cellular death. When the body as a whole has ceased to act, it is somatic death. Somatic death is a fact when, what Watson has appropriately called the "tripod of life"—*i. e.*, the brain, heart, and lungs, no longer functionates. At this time, cellular death has only partly occurred. In warm weather, as on a hot midsummer's day, cellular life may continue for hours after somatic death. Especially is this the case in sudden death.

The distinction between somatic and cellular death is of the utmost importance, and should always be in the mind of the physician. It explains the resus-

citation of so-called dead persons. There is a case on record of a man lying in the sunshine at the bottom of a small, quiet, shallow stream for fully half an hour before he was taken out, and efforts made at resuscitation, which proved successful at the end of several hours' unremitting labor.

Dr. Jerome Walker, of Brooklyn, was once called to attend a child suffering with diphtheria. It died while he was present. Consciousness was gone, the heart and lungs had ceased to act, the pupils were dilated, and, in fact, the child was a corpse. He tarried for a moment, and then left for his office, whence he returned with a faradic battery. This he applied to the pneumogastric nerve and chest muscles. Fully twenty minutes had elapsed since the death of the child and the beginning of the electrical application. After a while his efforts were crowned with success, for there were a few gasps and a flicker of the heart, but the officious and ignorant relatives compelled him to desist, and the child passed away into complete cellular death.

Probably one of the most remarkable of this class of cases is one which occurred in the practice of the late erudite and philosophic Dean of the Long Island College Hospital, Professor Samuel G. Armor. I record it, as I had it more than once from his own lips.

The patient was a well-to-do man with wife and children. He had purchased a pain-relieving remedy of a travelling quack. Its basis was cannabis Indica or Indian hemp. He swallowed an overdose, taking it in drachms instead of drops. In time he developed all the symptoms of narcotic poisoning. In spite of all efforts on the part of the attending physician he died. The grief-stricken wife and children wept at the bedside of the dead man. Dr. Armor was present, and at that time was Professor of Physiology in one of the Western schools. At last all left the death-chamber, except Dr. Armor and a negro attendant.

Looking out of a window the doctor mused for some time over the sad ending of his friend and benefactor, for such he had been, and came to the philosophical and scientific conclusion that his friend was somatically dead, to be sure, but that cellular life must still be active, for the room was warm. He thought that if the respiratory and circulatory functions could be maintained by external influences till enough of the poison had been eliminated by the cellular activity, the patient might still survive.

Dr. Armor stated to me that, if required, he would solemnly swear that the shortest possible time that could have elapsed from the time that death was declared until he concluded to make efforts at resuscitation, "*was at least one hour.*" In this estimate he allowed for all the circumstances that might cause time to be overestimated, and felt certain, in his own mind, that he had fixed the time at less than it had actually been.

Bottles of hot water were applied to the limbs; hot water, red pepper, and whiskey were injected into the bowel, and the same poured into the stomach. Artificial respiration was begun. When the Doctor tired, the negro relieved him, and so they alternated. Occasionally a stethoscope was employed to detect a possible heart-flutter. All was of no avail. After two hours' effort, the body continued lifeless. Hope had fled. The negro, however, continued while the Doctor rested. The desire to save his friend, if possible, and the scientific aspect of the question that had been raised, caused a renewed attempt. More injections were given, and more hot bottles were applied.

More than three hours had elapsed, and again was the attempt abandoned, and once more vigorously made. After nearly four hours of hard work, and when about to desist for the third time, Dr. Amos thought he detected a slight movement of the lips. Soon, again, he was quite positive that he saw it. Again he noticed it after a long interval, and then was certain of returning life. The stethoscope discovered an occasional light, muffled sound over the heart. More injections were given, and efforts at artificial respiration were redoubled. At last the gasps became pronounced, the heart-beats more frequent, the respiration deeper and more regular, until, eventually, respiration and circulation were reëstablished, but at a slow rate. Consciousness was not regained for hours, but eventually it returned.

Dr. Armor's description of his own feelings, and those of the family, and negro at this time may be better imagined than they can be told. The patient was alive and well over a score of years afterward; in fact, he was alive and well but a few years ago, and prominently interested and well known in New England financial and banking circles.

These cases teach the difference between somatic and cellular death, and demonstrate that when "life" is extinguished by a sudden interruption of the functions of the brain, heart, and lungs, without any organic change, there is hope for recovery if proper efforts are made and persevered in, for hours, if necessary.

The intelligent practitioner will always bear in mind the distinction between these two kinds of death. Just as we have so-called functional diseases which are not accompanied by any known or detectable lesions of structure, so, also, do we have functional somatic death without structural lesion. In all such cases it should be our duty as physicians to attempt the return of "life" until there is undoubted evidence of cellular death; for instance, rigor mortis would seem to be a reliable sign, judging from the present state of our knowledge on the subject, though coming investigation may show that even this is not necessarily a positive death accompaniment.

There can be no doubt about there being a number of deaths annually that could be prevented by persistent efforts at resuscitation. It seems to me that there is no more imperative indication for the necessity of

persistent efforts at resuscitation than the knowledge or belief that "death" is due to the cessation of the gross bodily functions without structural lesions. In all such instances efforts to bring back life should continue till there is positive evidence of death in the full sense of the word, and this I should consider proven after the appearance of *post-mortem* lividities and *rigor mortis*.

Many cases of the kind that I have mentioned could be adduced, but a few should be sufficient.

A proper question is as to the different modes of exciting the heart's action; among the many methods being Corrigan's button, heat and cold to the epigastrium, cardi-puncture, intracardiac injections, hot and cold douche and immersion baths, and flagellations.

129 S. THIRTY-SIXTH STREET, PHILADELPHIA.

MEDICAL PROGRESS.

The Treatment of Acute and Chronic Tonsillitis.—On Dec. 4th SIR MORELL MACKENZIE visited the throat clinic at the Edinburgh Eye, Ear, and Throat Hospital. He examined a number of patients, and in the course of a short clinical lecture made the following remarks:

"There are two forms of acute tonsillitis, the superficial and the deep. All of you must be well acquainted with these familiar diseases, but perhaps you will like to hear my experiences of the treatment. The superficial is not very serious. It is, however, painful, and it is apt to recur. A person who has had it once is very likely to have it again. This is true of both forms of tonsillitis, but it is particularly so of the superficial. The interior of the follicles becomes inflamed and secretes an unhealthy mucus, and they never thoroughly recover. In all inflammations of mucous membranes the membrane does not really get well, though it may appear to do so. A celebrated French surgeon has said that he does not believe that a person ever really recovers after a gonorrhœa. This is true of the follicles of the throat. A person who has once had acute tonsillitis never really gets well, though he may appear to do so. The treatment, therefore, is important. One of the most popular remedies is aconite—originally, I believe, a homœopathic drug, but now used extensively by allopaths (though I object to the term)—and strongly recommended by Dr. Ringer. It has certainly never, in my hands, proved to be of the extraordinary value which he asserts. On the other hand, I have found guaiacum, which used to be given in the form of the ammoniated tincture, very efficient. I recollect a Manchester surgeon, Dr. Crompton, who used to come a good deal to the Throat Hospital about the time it was founded, telling me I should find much more benefit by giving it in the form of a powder; and I did so, letting the patient take a pinch of the resin. This was rather disagreeable, and after a time I had it made into lozenges containing about three grains in each. In this form it makes an excellent remedy. Nine cases out of ten will get rapidly well if one of these lozenges is given every two hours at the outset. I sometimes also apply locally a little bismuth and opium, or an eighth of a grain of morphia with a quarter of a grain of starch, because the problem is not only to cure the patient, but to keep him comfortable till he is cured. Sometimes the guaiac causes a little diarrhœa, which is not altogether disadvantageous, but the morphia is usually sufficient to check it. What I have said about guaiac applies to acute inflammations of any part of the back of the throat. Dr. Home has said of guaiacum, "Instar specifici in hoc morbo operatur." It is really specific. I have used it for fully twenty years, and I assure you it is one of the best remedies you could have. It causes a slight stinging sensation, and this is an additional reason for using the morphia.

"Occasionally this superficial or follicular tonsillitis if not checked passes into the deep or parenchymatous form, and the structure of the gland becomes very much affected. When the deep inflammation occurs you must bring it to an abscess as quickly as possible, and open it. Trousseau has pointed out that some inflammations *begin* in the deep part of the gland, and these you cannot check, as a rule, though you may sometimes succeed with guaiac. I have done so in two cases lately. We are usually, however, called in too late. When you find you cannot stop the disease, give inhalations of benzoin, hop, or conium, and apply poultices to the outside of the throat. Directly you can find fluctuation, make an opening. As the tonsillitis develops it prevents the patient opening his mouth, and there is sometimes difficulty in getting at the abscess. This is the reason why surgeons sometimes have to let the abscess burst, but this should be avoided, if possible, because it has been followed by dangerous and even fatal hemorrhages. I generally use a curved and guarded bistoury, of which only the last quarter of an inch has a cutting edge, but an ordinary bistoury, the greater portion of the edge of which is covered with diachylon, may also be used. The incision is made with the cutting edge directed inward to the centre of the mouth. You must never cut outward, for there is then the danger of wounding the carotid. I would recommend you to incise in cases in which you may not be quite certain of fluctuation. A slight puncture, even if pus is not evacuated, does no harm. The use of leeches was at one time common, but Louis the French physician proved that they did not cut short the disease by more than one day, and therefore their application was not desirable. Leeches have the effect of increasing the inflammation rather than otherwise if less than six are applied.

"Chronic tonsillitis, or hypertrophy of the tonsils, proceeds from two causes. A large number of the cases are the result of a low form of inflammation occurring in childhood. The structure in childhood is very prone to become inflamed. If the tonsils are considerably enlarged, it is important to remove a portion of each. You should never speak of "cutting out the tonsils," as this sounds very alarming to the patient and his friends. Say that you mean to remove only "the diseased and enlarged portion." It is a consideration when you should do this. How much enlargement should there be before the operation is performed? First of all, the question of size is entirely relative. In a large throat the tonsils may grow to a considerable size, and the patient still do quite well. In a smaller throat this would not likely be the case. If the tonsils touch each other, you can have no doubt as to the propriety of taking away a piece. If adult patients come to you with the tonsils slightly enlarged, it is an

important question whether you should cut off a portion or not. If the enlargement is associated with frequent attacks of acute inflammation, you ought then to cut away a piece. There is another condition which requires a similar proceeding. When the follicles of the tonsil are much enlarged, you cannot cure it except by taking off a section, which may be not more than one-eighth of an inch thick. You thus clear away the walls of the deep follicles and get a flat instead of a "worm-eaten" surface.

"As to the method of operating, many surgeons do it with a bistoury, and Sir William Ferguson, a great surgeon, for whom I had the greatest admiration, used to perform it in this way, but it was terrible to see the patient struggling with the mouth half-full of blood before the operation was completed. Great surgeons will do all they can with a knife instead of what they call a "machine." I always perform the operation, however, with "a machine," a tonsillotome. The particular form I use is a modification of Physick's. The great advantage of this is that its mechanism is quite simple, and my modification enables the handle to be fixed on either side of the blade, so that the operation may always be performed with the right hand if the operator desires. As a general rule, lightness of touch is the chief desideratum in operating, but in tonsillotomy it is the reverse. Heaviness of touch is the important thing. The tonsillotome must be pressed well over the tonsil, which is also to be projected into it by pressure with the left thumb placed under the angle of the jaw. I once had a colleague who could do very little else, but he took off tonsils marvellously, and as I watched him I observed that it was this heaviness of touch that made him so successful. If you do not attend to this, you will not take off nearly so much as you desire. Patients have come to me a week or a fortnight after the performance of the operation by another surgeon, saying that the tonsil has been removed but has grown again! This, of course, means that enough was not removed at the operation. It is most important to take off enough.

"Hemorrhage from this operation is rare, but it has occurred, and the carotid in some instances has had to be tied. I once had a serious hemorrhage to deal with some twenty-five years ago. The usual styptics, and even the cautery, failed to relieve it. At last I tried a remedy which I have used ever since with perfect success. A chemist had informed me a short time before that a small quantity of gallic acid would prevent tannic acid dissolving. I mixed two parts of the tannic and one of the gallic in a little water, and gave the patient two teaspoonfuls, telling him to sip them slowly. The bleeding stopped almost at once. We have since used the same preparation at the Throat Hospital, and always with perfect success. The patient must be told to *swallow* the liquid, not gargle. Application with a brush will do no good. He should swallow the fluid slowly, as if it were difficult to get it down, and must on no account wash out his mouth or gargle."—*Edinburgh Med. Journal*, Jan. 1889.

Puerperal Mortality.—During recent years the mortality attending childbirth has shown a steady decrease, so that the maternal death-rate has fallen from the ten to fifteen per cent. of some years ago, to almost *nil* at the present day. Puerperal septicæmia, once the dread of the practitioner, is now gradually but surely being stamped out, and in the not distant future we may hope to see the mortality from this class of case reckoned, not by the fraction per cent., but by the fraction per thousand. The introduction of antiseptics into midwifery was indeed a very great stride, but it is to the more effectual carrying out of this system, and to its more perfect elaboration, that further and more brilliant results are to be looked for in the future. Epidemic outbursts of puerperal septicæmia have been greatly diminished, owing to improved hygienic surroundings and the introduction of antiseptics; whilst, if septicæmia should occur, our improved methods of treatment render the disease more tractable and less to be feared.—*British Medical Journal*, December 29, 1888.

Antiseptic Pastilles.—DR. ROTTER, of Munich, after numerous careful investigations to decide which antiseptic would be best adapted to the disinfection of the hands, has concluded that the following compound answers all purposes:

℞.—Sublimate		⅞ grain.
Carbolic acid		30 grains.
Chloride of zinc	āā	77 "
Sulpho-carbolate of zinc		
Boracic acid		45 grains.
Salicylic acid		9 "
Thymol		2 "
Citric acid		2 drops.

This compound dissolved in two pints of water has the same antiseptic properties as 1 : 1000 sublimate solution, which properties it even retains if the sublimate and carbolic acid are omitted.

The author has succeeded in converting this compound into tablets, each containing the quantity and amount of the ingredients mentioned. They are easily soluble and would seem to answer all purposes, the author having made use of them in twenty-seven surgical and twenty-six gynecological cases with the most gratifying results.—*Münchener med. Wochenschrift*, December 18, 1888.

Rhus Aromatica in Atony of the Bladder.—Rhus aromatica, the fragrant sumach of the United States, is recommended by several French physicians as a valuable remedy in cases of incontinence of urine, and in atonic conditions of the bladder and its sphincter. Children from two to six years old may take ten drops night and morning, and older children fifteen drops for a dose. The tonic effect of the medicine does not always persist, but the trouble is liable to return when its use is suspended. It may be given in simple elixir.—*American Druggist*, January, 1889.

Treatment of Sycosis.—DR. GEORGE THOMAS JACKSON, in a paper on this subject read before the New York Dermatological Society, November 27, 1888, concluded that from a number of cases which came under his observation, the following treatment yielded the most satisfactory results:

In acute cases in which there is much pustulation, epilate or curette, and apply boric acid ointment, or Lassar's paste with salycilic acid. Give one-tenth of a grain of calcium sulphide in fresh tablet triturates every one or

two hours. If an acute outbreak of pustules occurs under it, stop it until a subsidence of the eruption takes place, and then begin again.

In subacute cases in which there is not so much pustulation, but more redness, and the disease is more patchy, epilate or curette and use Bronson's ointment, or one of sulphur or tar, or other mild stimulant. Or use soap frictions, followed by protective ointments.

In chronic cases, epilate or curette, or apply a solution of caustic potash carefully to diseased parts. Locally, employ strong ointments or solutions of tar, provided caustic potash has not been used. If caustic potash has been used, then apply a simple soothing dressing. The use of tar in alcohol, as proposed by Pick, of Prague, has of late given brilliant results in Jackson's hands in some cases of chronic eczema, and in the last few days has greatly benefited one of the cases here reported, one which had shown itself to be very obstinate. Soap frictions are also valuable at this time. As chronic and subacute cases may take on acute forms under stimulating treatment, we must be prepared at any moment to apply more soothing methods of cure according to indication.

For the best effect from our local treatment we must insist upon our remedies being kept constantly applied during day and night. To the same end the patient is to be advised to shave himself about twice a week. This is not absolutely necessary, but facilitates the action of the application upon the diseased skin. If a rhinitis be present, appropriate remedies must be used for that.

While treating the skin affection we must not forget the man whom the skin clothes. We must address ourselves to the task of regulating the diet and general hygiene of the patient, and give medicine, if needs must, upon the same principle as we would if the patient came to us not for his sycosis, but on account of his poor general condition.—*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1889.

Mercurial Inunction in Typhoid Fever.—Three years ago a short account was given of a method of treating typhoid fever which DR. KALB, of Thalmassing, had found very successful in one hundred cases in which he had tried it, in eighty per cent. of the cases fever entirely disappeared within ten days. The treatment consisted of rubbing one gramme (fifteen grains) of mercury ointment into the abdomen on the first day, into the inner aspect of one thigh on the second day, and on the third day into the other thigh. The course was repeated during the three following days. Dr. Kalb also gave alcohol methodically, and a few calomel and opium pills on the first day. Dr. Felix Bartlett has published a short paper in the *Australasian Medical Gazette* (November, 1888) in which he confirms Dr. Kalb's statement. He found that the temperature fell to normal in two or three days, and that in five or six days from the commencement of the treatment all other symptoms had disappeared. Both Dr. Kalb and Dr. Bartlett agree also in stating that the treatment by inunction is only of use when commenced before the ninth or tenth day of the disease, and as this is a period when the symptoms are not very distinctive it is possible that, in some instances, the cases submitted to this treatment were only febricula.

The history of one family given by Dr. Bartlett is of special value as affording evidence generally so difficult to obtain on this head. He says: "In one house a child of four first fell ill. She was not seen by me until the end of the second week. She had a very severe attack, and narrowly escaped with her life. Whilst I was attending upon this case the mother, who was nursing the child, and also two elder children who were in the house, showed undoubted symptoms of enteric fever, with considerable rise of temperature. All three were put under this treatment at once. The symptoms rapidly disappeared, and none of them was in bed more than five or six days. The father next fell ill with precisely the same symptoms, but having to go away on urgent business, refused all treatment. He, however, returned in a few days with the symptoms fully developed, and he ultimately died of the disease. Two servant girls in the house also suffered, but neither said anything about her symptoms until in the third week; one had an ordinary attack, the other a severe one, but both ultimately recovered." In another house, where also the first sufferer was a child, "the mother and the servant both developed decided symptoms, but, being put under treatment, were convalescent in a few days." Dr. Kalb was more cautious in speaking of the early complete recovery of his patients; he found that the spleen remained enlarged for about a fortnight after the fall of temperature, and advised that the patients should be kept under strict observation during this time for fear of a relapse.

It may be useful to recall here that calomel has been lately used, especially in Germany, in the treatment of typhoid fever. Liebermeister has given some striking statistics on this point. He gives the results of 839 cases; 239 were treated with iodine, 223 with calomel, and 377 with neither, the rest of the treatment being exactly alike in all, and consisting in the employment of a partial antipyretic method. Of the cases treated with iodine, 35, or 14.6 per cent. died; of those treated with calomel, 26, or 11.7 per cent. died; while of those non-specifically treated, 69, or 18.3 per cent., died.—*British Medical Journal*, January 5, 1889.

Borax in the Treatment of Diphtheria.—DR. L. NOËL, of Noyers-Saint-Martin, has had considerable success with the following treatment practised by him for the last four years.

Starting with the belief that diphtheria is not a local but a constitutional disease, he sought a remedy which could be introduced into the system in quantities large enough, so to speak, to "crowd out," and not merely modify the action of the poison. The author thus selected borax from all other antiseptics, as bearing administration in large doses without danger to the patients.

In epidemics of diphtheria, the author administered nothing but borax, with but three deaths out of sixty cases thus treated.

The author claims that this agent produces a rapid and abundant salivation; and, in being eliminated by the salivary and muciparous glands of the throat, it softens and detaches the false membranes.

The dose is from 8 to 15 grains in an infant below one year of age; of from 15 to 22 grains for two to five years; of 30 grains for five to ten years; and from 45 to 75 grains for adults, according to the strength of the patient and the severity of the disease. No better results were obtained from 200 grains or over than were obtained

from 60 to 75 grains. The doses are to be equally divided, and given hourly, except during sleep.

In order not to disgust the patient, the correctives in which this salt is given must be frequently changed, as the administration of this medicament must be continued for some time after all symptoms of the disease have passed off, the author having administered it to two patients uninterruptedly for four and six weeks.—*Revue Thérapeutique*, December 15, 1888.

The Obstetric Therapeutics of 1888.—The effect of ergot in involution of the uterus has been studied by Herman, and the results appear to us to demonstrate that the continued use of ergot during the process of involution of the uterus is to be deprecated. Blanc, a French physician, from the observations of the use of this drug in two hundred cases of parturition, arrived at practically no conclusion; if anything, his investigations led him to believe that involution was retarded. Pilocarpine in labor receives attention, but the conclusions arrived at and the deductions drawn are hardly such as to encourage the use of the drug in any of the stages of labor. Cocaine, for the relief of pain in the earlier stages of labor, has been tried, but does not meet with general approbation; and the same may be said of antipyrin, though we are inclined to believe that further trial of this last drug will prove it to be of some service. Silicofluoride of soda, or "salufer," as an antiseptic for intrauterine or vaginal douches, is highly spoken of, and said to be most efficient. It has the advantage of being "a nearly perfect antiseptic agent," and, unlike the perchloride of mercury solutions, it does not roughen the hands, spoil instruments, or set up poisonous symptoms; while, at the same time, it is a very powerful germicide, and, according to Mayo Robson, a solution of "0.61 per cent. possesses greater antiseptic power for animal tissue than a one in five hundred perchloride of mercury solution."—*British Medical Journal*, December 29, 1888.

Pneumotomy for Pulmonary Abscess.—PROFESSOR F. M. OPENSOVSKY, of Dorpat, relates in the *Vratch*, No. 38, 1888, a strikingly successful case of pneumotomy for an enormous abscess of the right lung, with gangrene, in a man aged thirty. The patient had enjoyed excellent health up to the middle of April, 1886, when, in consequence of exposure, he caught severe pleuro-pneumonia, which ended in suppuration. Three weeks after the onset of the illness he expectorated a tumblerful of offensive pus. The suppuration steadily progressed, being accompanied by violent cough, hectic fever, and emaciation. About the middle of September signs of pulmonary gangrene appeared. Pneumotomy was performed by Professor W. Koch, on September 19th. The patient being slightly under the influence of chloroform, two pieces, each ten centimetres long, were excised from the fifth and seventh ribs, between the anterior and posterior axillary lines. The pleura having been found firmly adherent, a thermo-cautery was plunged into the pulmonary tissue, striking the abscess-cavity at a depth of two or three centimetres; this was followed by cough and the expulsion of a large amount of fetid greenish pus. On placing the man on his right side a tumblerful of pus immediately escaped. The cavity was so large as to allow Professor Opensovsky to introduce his whole hand and freely move it about, searching for the bronchial opening. Having removed with the fingers several pieces of sloughing tissue, the operator enlarged the bronchus with the thermo-cautery, and then freely cauterized the whole gangrenous focus, afterward washing out the cavity with a weak solution of permanganate of potash. In conclusion, a fenestrated drainage-tube was inserted, and an antiseptic dressing applied. The irrigations were repeated twice daily for the first ten days, and only once a day up to October 26th, when the drainage-tube was removed. The temperature became normal on the eighth day after the operation. In November the wound closed, and on December 8th the patient was discharged, practically well. On re-examination about a year and a half later, a shallow funnel-like depression was found at the site of the operation, with a slight spinal curvature with the concavity toward the right; but the man felt quite well, and was able to earn his living as a hospital porter.

According to Professor Opensovsky, this is about the twentieth case of pneumotomy for pulmonary abscess, and the fourth in which complete recovery has taken place without a fistula being left.—*British Medical Journal*, January 5, 1889.

Iodoform in Diphtheria.—In the Polish weekly *Gazeta Lekarska*, No. 36, 1888, DR. A. PULAWSKI, of Warsaw, details seventeen cases of diphtheria, mostly of a severe kind, rapidly cured by the local use of powdered iodoform, in quantities varying from five to ten grains twice or thrice daily. The drug was applied by means of a brush or an insufflator. According to Dr. Pulawski, iodoform acts as an antiseptic, and represents, generally, the best anti-diphtherial means of all known. The main advantages are said to consist in, 1st, its being absorbed but gradually; 2d, in its application being easy and simple; and 3d, in its manipulation (powdering, insufflation) being free from such dangers as wounding the affected mucous membranes.—*St. Louis Med. and Surg. Journal*, Jan. 1889.

Remarkable Tolerance of Nitro-glycerin.—DR. DAVID D. STEWART (*Polyclinic*, December, 1888) reports a case of chronic parenchymatous nephritis, in a male aged twenty-six, in which tolerance to nitro-glycerin was so rapidly acquired that, a few months after its administration was begun, no dose, short of one which to prescribe seemed hazardous, exerted any appreciable influence on the vascular system. When the case first came under observation there were present slight cardiac hypertrophy with arterial fibrosis; dropsy, scanty urine of light gravity, containing an abundance of albumin and casts. In addition to other remedies, one minim of a one per cent. solution of nitro-glycerin, four times daily, was prescribed. To maintain a constant effect, this dose was directed to be gradually and systematically increased. In less than seven months the patient was taking fifty minims of a ten per cent. solution, four times daily—an equivalent of twenty minims of pure nitro-glycerin in the twenty-four hours, with no more appreciable subjective or objective effect than was originally produced by the initial dose of one minim of the one per cent. solution. His condition has steadily improved. Dropsy has disappeared. The urine has become normal in amount. Casts cannot be found in any of the recent specimens examined, and the albumin has decreased from many grammes to but one per litre.

THE MEDICAL NEWS.

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SATURDAY, JANUARY 26, 1889.

THE PRACTICE OF OBSTETRICAL ANTISEPSIS BY NURSES.

THE theory of antisepsis in obstetrics has had sufficient trial to give evidence of its practical value, and it is at present more a question of the mode of practising antisepsis than of the value of the method. The education of nurses in America has reached the point where a considerable number of competent women, practically familiar with surgical and obstetrical antisepsis, are graduated from hospital schools yearly. There remains, however, a considerable number of untrained nurses, not familiar with the use of antiseptics, for whose guidance simple, explicit rules are needed. The problem of the application of antiseptic treatment outside of hospitals awaits a complete solution, for nurses perfectly competent when possessed of the apparatus and solutions furnished in hospitals may be puzzled in attempting antiseptic treatment in dwellings.

The rules recently added to the *Manual of Midwifery for Prussian Midwives*, which were published in this country in THE MEDICAL NEWS of last week (page 83), and recent writings and discussions by Ahlfeld, Valenta, and others, afford information of practical value. Of primary importance for nurse, as well as physician, is strict personal cleanliness; the toilet of the hands must be exact, the ordinary clothing clean and covered by a large clean apron. The forearms must be bare and cleansed with the hands; the nurse must carry toilet articles used by her only. German authorities do not, at present, entrust bichloride of mercury to midwives and nurses; fluid carbolic acid is provided, with a measuring glass and glass irrigator of marked capacity, in which definite solutions are prepared; explicit directions for making solutions and mixing carbolized oil or glycerine are given, every precaution being taken against the possibility of injuring a patient by undissolved acid. The apparatus needed by the nurse is very simple, an irrigator, elastic tubing, suitable canulæ and catheters, with absorbent cotton or jute. The instructions given may be stated in the three simple propositions: strict personal cleanliness; strict aseptic cleanliness for the patient and all touching her; non-interference without positive indications. The last refers especially to vaginal injections, which must never be given without the doctor's order, or the existence of unmistakable indications, which are clearly defined.

The use of bichloride of mercury, so common in American hospitals, cannot be criticised when in the hands of a nurse of known intelligence and experience; in less skilful hands the usage of the German Government is to be commended. Dispensary physicians, and those who assign cases to medical students, may profit by these regulations in instructing those who care for the poor after confinement; in the absence of midwives instructed by the government, such attention to the details of obstetric practice is especially incumbent on practitioners. Dispensaries might easily furnish standard solutions of antiseptics and sterilized cotton or jute, to be used instead of sponges. There is no field of practice in which meddlesome ignorance can do such great harm as in obstetrical practice, and no work in which the faithful observance of the simple axioms of science can obtain such excellent results.

THE BACILLUS OF YELLOW FEVER.

IN another column we have the pleasure of laying before our readers a paper, which was read by DR. PAUL GIBIER, last week, before the New York Academy of Medicine, describing the results of his researches during the late epidemic of yellow fever in Florida, which were prosecuted under commission from the French Government.

Dr. Gibier found in the intestine in one case the same bacillus which he saw in several cases of yellow fever in Havana in the winter of 1887–8, and which he believes to be the cause of the disease. This bacillus presents many points of resemblance to the

comma bacillus of cholera. He holds that the reason why this bacillus is not found in every case of the disease is because when a culture medium becomes saturated with a microörganism, its growth stops and another microbe then flourishes in the transformed medium, and the first disappears. Therefore, his microbe is likely to be found only in the early stage of the disease, and in the alkaline intestinal contents. A moist heat of 140° F. destroys the bacillus in a few minutes, and desiccation proves fatal to it within twenty-four hours. This last observation, in Dr. Gibier's opinion, explains the immunity of inland districts—the comparative dryness of the air destroying the bacillus.

This same bacillus, we believe, has also been isolated and carefully studied by Dr. Sternberg, who has reached a very different conclusion as to its etiological relation to yellow fever, and in his latest published utterance on the subject (*Transactions of the Association of American Physicians*, vol. iii., 1888) he briefly states his opinion that the specific agent of yellow fever has not yet been demonstrated.

In accordance with the view of Dr. Gibier, yellow fever is an intestinal infection, which must be treated from the onset by evacuants and disinfectants.

STATES MAY REGULATE MEDICAL PRACTICE.

AN interesting decision has been rendered by the Supreme Court of the United States, supporting the right, claimed by the State Board of Health of West Virginia, to make rules for the regulation of the practice of medicine. The statutes of that State enact that every practitioner must qualify himself for legal practice by obtaining from the Board a certificate that he is a graduate of a reputable medical college, or has been ten years in the State engaged in practice, or that he has passed a satisfactory examination before the Board. A practitioner, named F. M. Dent, having been convicted of illegal practice, carried the case up to the State Court of Appeals, and thence to the United States Supreme Court, asserting that the law was unconstitutional, inasmuch as it deprived him of liberty and property without due process of law.

The decision of the Supreme Court says: "The power of the State to provide for the general welfare of its people authorizes it to prescribe all such regulations as may be necessary to secure the people against the consequences of ignorance and incapacity as well as of deception and fraud. One means to secure this end is the method adopted by the State of West Virginia. If the means adopted are appropriate to the calling or profession, and obtainable by reasonable study or application, no objection to their validity can be raised."

If it is the right of the State under this weighty and memorable decision, to protect its citizens from pretenders and quacks, the duty so to protect them must be found by all diligent State Boards of Health to follow sharply thereafter. This duty to repress ignorant or fraudulent practice does not, of necessity, inhere in a Board of Health—in England, for example, it rests with the General Council of Medical Education and Registration—but it has been found expedient in this country to make the State Board the means for the correction of this form of abuse. In two States, at least, Illinois and California, a considerable improvement in medical practice has been accomplished, and we expect that West Virginia will presently report that her ranks have been purified from the worst of her quackish and ignorant impostors.

WE are gratified to chronicle that the Governor of Florida has called upon the Legislature of that State to convene in extraordinary session for the purpose of establishing a State Board of Health and for other sanitary measures. This is a most important step, and has been taken none too soon, for the Legislature will not meet until February 5th, and a considerable time must, of necessity, elapse before the ways and means can be agreed upon and the sanitary machinery be set in motion. It is to be hoped that the law-makers will be as prompt as possible in the adoption of a liberal and efficient charter for this new Board, upon which great responsibilities will rest.

DR. JOSEPH Y. PORTER, surgeon in charge of the Government relief measures, in the early part of the week sent the following official announcement of the completion of disinfection in Jacksonville to Surgeon-General Hamilton in Washington:

"The work of disinfection and destruction of infected bedding is practically finished in this city. It is perfectly safe for any one to visit Jacksonville who may wish to, as the work has been as thorough and efficient as human agency could make it. It speaks for itself that Jacksonville is perfectly clean. Please announce this through the public press, so that the timid may have their fears removed, and that confidence in the city may be restored."

On January 21st, the Auxiliary Sanitary Association tendered Dr. Porter resolutions expressing appreciation of the work done by him at Jacksonville during the past four months, and also presented him with a very handsome gold repeater watch and chain as a souvenir of his stay in Jacksonville. As all his sanitary work is now completed, Dr. Porter has left for Key West, his home.

THE Surgeon-General of the Army, in his report to the Secretary of War, recommends that authority be granted by Congress for the publication of a Catalogue of the Army Medical Museum.

DR. LANDON CARTER GRAY has been elected President of the New York Society of Medical Jurisprudence, and Chairman of the Neurological Section of the New York Academy of Medicine.

DR. W. W. KEEN has been elected President of the Philadelphia County Medical Society.

The Lancet announces that it has founded "*The Lancet* Medical Fund," the object of which is to afford immediate pecuniary assistance in emergencies to medical men, or, in case of the death of a medical man, to his widow or orphans or dependent relatives. The Almoners of the Fund are to be the President of the Royal College of Physicians, the President of the Royal College of Surgeons, the President of the General Medical Council, and the two proprietors of *The Lancet*. The latter will generously place at the disposal of the Almoners a sum of at least $1500 a year, which will be administered free of cost, and they do this to express their sense of the generous support which the profession has accorded to *The Lancet* during the sixty-six years of its publication.

THE Trustees of the Philadelphia Polyclinic and College for Graduates in Medicine have founded a chair of Diseases of the Mind and Nervous System, and have elected Dr. S. Weir Mitchell to the professorship.

The Trustees have purchased a large property on Lombard Street, above Eighteenth, for $25,500, which will be adapted to the uses of the institution.

DR. WILLIAM OSLER, Professor of Clinical Medicine in the University of Pennsylvania, will deliver the second annual address before the Society of the Alumni of the Bellevue Hospital, on Wednesday evening, April 3d, at the Hall of the New York Academy of Medicine.

THE Governor of Illinois, in his annual message, sent in to the General Assembly last week, pays the following just tribute to the State Board of Health: "The wise and intelligent policy of the Board on the subject of quarantine has been of great value to the material interests, not only of Illinois, but of the whole Mississippi Valley. While vigilantly guarding against the introduction and spread of the dangerous, contagious, and infectious diseases, it secures the least interference with commerce and travel, and so averts unfounded panics and prevents loss and interruption of business and industry. During the past few months a striking illustration of the value of this policy was afforded by the action of the worthy Secretary of the Board, who refused to sanction any expenditure of money from the public treasury in the maintenance of quarantine restrictions, which his wide and varied experience and scientific knowledge enabled him to pronounce unnecessary for the State. His firmness in this instance alone prevented the loss of thousands of dollars, besides great inconvenience to travellers and vexatious interference with business; and the example thus set materially helped to check the ruinous and needless quarantine enforced in other States."

LONDON maintains its position as the most healthful of the large capitals of the world. The health-rate of that city in 1888 was 18.5 per thousand, the lowest that it has yet recorded. The *Lancet* of January 5th points out, at the same time, a possibility that the official estimate of the city's population may be too high, since it is now eight years ago that the last census was taken; the estimate for the middle of 1888 being placed at 4,282,-921. The birth-rate, 30.7 per thousand, is also the lowest hitherto registered. Zymotic deaths were, as a rule, lower than in recent years; the only exception being those by diphtheria, which were never higher than in 1888. Diarrhœal causes had an unprecedentedly low rate, owing to the cold and wet summer season of last year.

AT Vienna a beginning has been made of a promising museum of specimens illustrative of medico-legal questions. About 1400 specimens have been gathered, chiefly by Professor Hofman and his assistants, and have been given a place at the General

Hospital, along with other and older collections. Considerable space is given to specimens relating to sexual jurisprudence, the production of abortion, homicide, suicide, the effect of poisons, of burns, the lodgement of foreign bodies in the respiratory passages, the identification of the dead body.

SOCIETY PROCEEDINGS.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 11, 1889.

THE PRESIDENT, WM. GARDNER, M.D., IN THE CHAIR.

DR. JAMES BELL read a paper on

THE CAUSE AND PREVENTION OF URETHRAL FEVER.

After shortly describing the various theories held as to the cause of this fever, he said that every medical man was familiar with a certain form of constitutional disturbance which follows instrumental or operative interference within the urethra. Preëxisting disease of the kidneys, ureters, or bladder, sepsis, etc., may explain some of the cases, but there still remained behind a large class of cases occurring in male patients of all ages, in which operative or instrumental interference will be followed by a train of symptoms to which have been given many names, such as urethral fever, urine fever, catheter fever, etc. The symptoms occur in four different forms:

(1) Shock, collapse, and death within a few hours after operation, with or without chill or fever, and with partial or complete suppression of urine.

(2) A severe chill with high fever occurring a few hours after operation, and usually following the first act of micturition. Profuse sweating and prostration follow, but the whole disturbance lasts from only a few hours to two or three days.

(3) Recurrent chills and high fever coming on at irregular intervals and lasting perhaps for weeks and months.

(4) A moderate fever with slight chills or chilly feelings, accompanied by great depression, low muttering delirium or semi-coma; patient gradually passing into a typhoid condition, and dying in two or three weeks. Such cases occur in old men with large prostates, especially in those in whom frequent catheterization has resulted in the formation of false passages.

The various symptoms called urethral fever have been attributed to—

(1) Septicæmia.

(2) Reflex nervous phenomena.

(3) Uræmia.

Dr. Bell went on to say that in December, 1883, Sir Anthew Clarke read a paper, before the Medical Society of London, on "Catheter Fever," which called forth a spirited discussion, in which all the leading genito-urinary surgeons took part. No definite conclusions, however, were arrived at.

The reader of the paper stated that a very casual investigation of the subject shows the utter inadequacy of any of the theories mentioned above. It differs entirely from pyæmia and septicæmia in its symptoms and in the absence of gross lesions; nervous disturbance in no other cases causes such symptoms, and it corresponds to no known form of uræmia.

The discovery of the animal alkaloids, known as ptomaines and leucomaines, and the experiments of Dr. Burchard, of Paris, from 1882–6, upon the toxicity of the alkaloidal substance found in normal urine, seem to give the key to a rational explanation of the origin of urine fever. There can now be hardly any doubt that the disease is due to the absorption of the products of decomposed or decomposing urine from cut, lacerated, or abraded portions of the urethra. It is not a septic process but a form of poisoning closely allied to uræmia and due to the absorption of a toxic alkaloid, produced by or during the decomposition of the urine. The clinical facts in support of this are very strong, and were tabulated by Dr. Bell as follows:

(1) Urine fever is unknown after perineal lithotomy, external and internal urethrotomy in the pendulous urethra, and is far less frequent when the urethra is wounded in its floor.

(2) When, after internal urethrotomy, the urethra and bladder have been carefully washed out with an antiseptic solution, urine fever does not occur until some hours after urine has been passed over the wounded urethral surface, and is then of a mild type and free from danger.

(3) Operations upon the female genitals, which wound or injure the urethra, are not followed by urine fever.

(4) Mr. Reginald Harrison, of Liverpool, has shown by a number of operations that when the bladder is drained by a perineal wound after internal urethrotomy that urine fever never occurs, and he attributes its origin to the absorption of the products of the decomposing urine in wounds of the urethral mucous membrane.

The reader of the paper said that it was primarily with the object of adding his experience in support of this important observation, and his testimony in favor of the combined operation that he brought this subject forward. He related the history of five cases operated on by the combined method during the last few months. In these five cases he drained the bladder by the perineum after having divided the stricture internally, after Mr. Harrison's method. All five cases selected were specially intractable strictures due to traumatism, etc., and situated in the deep urethra, and in several cases the strictures were multiple. All these cases recovered from the operation without a bad symptom, no rigors or fever. In contrast to the result obtained in unfavorable cases, Dr. Bell related six cases of simple stricture which he had treated by internal urethrotomy alone; in four of these urethral fever supervened—in each case after urination.

Dr. Bell drew the following conclusions:

(1) That urine fever is a consequence of the lodgement and decomposition of urine in contact with a wounded urethra, the inference being that the absorption of the product of decomposition which takes place from wounded surfaces, and which could not occur through the normal urethral mucous membrane, is the direct cause of this condition.

(2) Urine fever is *absolutely preventable*, either by providing a dependent drain, so that urine could not lie in contact with the wounded urethral surface long enough

to decompose, or by preventing the decomposition of the urine by drugs or antiseptic injections.

(3) That a perineal cystotomy is a simple and easily performed operation, which does not materially add to the risks attending urethrotomy, and is not followed by unpleasant consequences if the drainage tube be not retained too long.

(4) That decomposition of urine can be delayed for a considerable time by thorough cleansing of the urethra and bladder, and by injections with antiseptic solutions after operation. This, with the precaution on the part of the patient of abstaining from passing urine for as long as possible, will greatly lessen the frequency of urethral fever.

(5) Quinine, aconite, and other drugs may be of use when urine fever has occurred, but they are powerless in most cases to avert it.

(6) Patients with enlarged prostate, who have suffered from laceration of the deep urethra, should be treated by perineal cystotomy at once in order to avert urine fever, which is likely to occur as soon as the patient is able to evacuate urine without a catheter.

DR. RODDICK, in the discussion which followed the reading of the paper, said that many of the cases of urethral fever which formerly were so common were no doubt due to sepsis—sufficient attention was not paid to the cleanliness of instruments. This would, however, not explain all the cases. He agreed with the reader of the paper in thinking that external urethrotomy was the proper operation in cases of severe stricture, but he would not complicate it with an internal urethrotomy. The external operation was not such a simple one as Dr. Bell said it was, he had seen death follow the operation and occasionally a fistula persists. Dr. Roddick had great faith in the administration of quinine and aconite in cases of operation on the urethra and he was convinced that they often prevented the occurrence of urethral fever; he related the case of a man who had been operated on several times by internal urethrotomy. When quinine was given there was no urethral fever, but when its administration was omitted severe fever followed the operation.

DR. SHEPHERD said that he entirely agreed with the views concerning the origin of many cases ot urethral fever, advanced by the reader of the paper; these views had been ably discussed and illustrated by Mr. Reginald Harrison, of Liverpool, in the Lettsomian Lectures of last year, and in addition to the evidence offered by Dr. Bell he might add the fact that in cases of enlarged prostate with retention where the patient had been subjected to prolonged and ineffectual attempts at relief by catheterism, and where there was injury to the urethra, no urine fever followed if the urine was drawn off by aspiration above the pubes. He thought, however, that a distinction should be drawn between urethral or urine fever and the so-called catheter fever which followed the commencement of catheter life in old people with large prostate and which often terminated fatally at the end of two or three weeks; here the probable source of the mischief was in the kidneys. Even in these cases rest in bed during the first week and catheterization under ether averted the attack of catheter fever.

Dr. Bell had referred to the internal administration of drugs, and seemed to think that they had no power to prevent an attack of urine fever. This he could not agree with. He had frequently seen urine fever averted by the administration of drugs, such as quinine, etc., before or immediately after the catheterization or operation. Some held that the individuals thus influenced by quinine had been previously the subjects of malaria, but the fact remained that a full dose of opium or quinine frequently prevented the onset of the fever. In illustration of this a case was cited where on passing a catheter for stricture, when quinine was omitted urine fever invariably followed. Dr. Palmer, of Louisville, Ky., advocates the administration of boracic acid for some days before internal urethrotomy, to sterilize the urine. In forty cases operated on, only one had urethral fever, and in this case boracic acid had been omitted. Dr. Shepherd had no doubt that by giving drugs such as quinine, boracic acid, etc., which were largely eliminated by the kidneys, the urine could be sterilized, and urethral fever averted. He himself was in the habit of trusting to opium and quinine.

DR. T. WESLEY MILLS said that all forms of urine fever could not be reduced to one type. No doubt, chills and fever frequently follow catheterization or operation, but the occurrence of ptomaines in the urine will not altogether explain this, and facts have been adduced to prove this. Irritation will explain some cases; at least this may explain the beginning of an attack, which is afterward aggravated by ptomaines. The normal depends on ingoing influences, and the abnormal on derangement of these. Has opium, quinine, or even whiskey been given before the operation? These lessen nervous irritation. He thought the views advanced too narrow, and broader grounds must be taken.

DR. STEWART asked if urethral fever was not caused by the mere introduction of an instrument, without abrasion.

DR. RUTTAN could not quite agree with Dr. Mills that the group of symptoms known under the name of urethral fever were of nervous origin; he thought that the ptomaines theory was the strongest. The toxic action of normal urine has been long established, and the experiments of Burchard and Gautier go to establish the development of ptomaines in fermenting urine. It is not usually understood why, for all putrefactive alkaloids so far found in urine have the effect of depressing the system, lowering the blood pressure, pulse, and temperature.

The phenomena observed in urethral fever are those of increased metabolism and high temperature; these, then, must be due to some, as yet unknown, constituents of the urine. He could not see why it was necessary to suppose that the urine underwent decomposition in contact with the raw surface of the wound. Gaucher, in some recent experiments, has shown that the extractives normally present in urine, such as creatin, creatinin, xanthin, etc., when introduced into the circulation in minute doses are capable of giving rise to serious systemic disturbance, and, if continued, of inducing an acute nephritis, anuria, and death. Now, as normal urine contains a number of leucomaines or physiological alkaloids of higher toxic powers than creatinin, their absorption might account for some of the phenomena observed. If urethral fever be not due to alkaloids, it is a curious coincidence that those drugs which are most in favor in the treatment of such cases are alkaloids, and many of them physiological antidotes to ptomaines

already worked out. Brieger's toxic neuridin is rendered almost innocuous by aconite, others are counteracted by morphia, atropia, and other drugs employed in urethral fever. The very argument adduced by Dr. Shepherd against urine fever being due to ptomaines is in favor of that theory, for rest in bed is the very treatment to prevent the formation of poisonous ptomaines, these being formed during exercise only. He could well imagine how useful boracic acid would be in such cases, for it is eliminated almost unchanged by the kidneys.

DR. GARDNER asked if the introduction of these alkaloids into the body was attended by high temperature.

DR. RUTTAN said there was no elevation of temperature when these were introduced, which was an argument against the ptomaine theory.

DR. LAFLEUR asked Dr. Bell if the shiver which sometimes accompanies the act of micturition should be looked upon as a form of urine fever, and if not, where were we to draw the line?

DR. BELL, in reply to Dr. Roddick, said he did not perform external urethrotomy, but merely opened the membranous urethra for purposes of drainage. If the tube was retained for only three or four days no fistula could possibly result. He thought the catheter fever of old men was different from the urine fever following operations on the urethra in apparently healthy men. He had treated the subject from a purely clinical standpoint, and had not specially considered its physiological or chemical bearings, and he said that what he regarded as essential to prevent urethral fever was, (1) to prevent the lodgement of urine in contact with a wound of the deep urethra, and (2) to prevent its decomposition in such a situation.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, January 3, 1889.

THE PRESIDENT, THOMAS M. DRYSDALE, M.D., IN THE CHAIR.

DR. C. P. NOBLE reported

A NEW METHOD OF DIAGNOSIS IN OBSCURE CASES OF ENTERO-VESICAL FISTULA.

He had been recently asked by Dr. C. M. Wilson to see a patient supposed to be suffering from a fistula. It was not his purpose to report the case in full. Briefly, the woman had what is called an ischio-rectal abscess, about five years before. Some time after this abscess discharged she stated that she began to pass wind and small pieces of fecal matter *per urethram*, at irregular intervals. No symptoms of bladder irritation existed. An extensive cicatrix following ulceration produced by a pessary, is present in the vagina. It extends along both sides of the vagina and across the posterior fornix (behind the cervix). In view of the absence of bladder irritation and the well-known haziness of the knowledge of anatomy possessed by the laity, it was thought likely that if the fistula did exist it was a recto-vaginal fistula. A careful examination under anæsthesia by touch and sight made by Drs. Wilson, Hawley, himself, and others, failed to demonstrate the existence of any fistula communicating with the vagina. But two conclusions could be drawn; either the woman was right or else she was a malingerer. The latter seemed probable from what was known of her.

It was suggested that a careful and extended study of the urine, made with the microscope, might determine the diagnosis—particles of vegetable fibre or seed of small fruits might be found. This plan involved much labor and time. It occurred to him that the hydrogen gas test would settle the matter quickly and positively and he suggested that it be employed. The recommendation was accepted and followed the next day. Dr. Wilson forced the gas into the rectum and lighted the gas at the end of a catheter introduced into the bladder. Dr. Noble was unable to be present at the time, but Dr. Wilson told him that no gurgling sound was heard (caused by the gas passing the ileo-cœcal valve), hence it seems plain that the communication exists between the bladder and the large intestine. Dr. Noble offered this as a new and valuable method of diagnosis in obscure cases of entero-vesical fistula: or a new application of Senn's hydrogen gas test.

NEW YORK NEUROLOGICAL ASSOCIATION.

Stated Meeting, January 8, 1889.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

DR. GRAEME M. HAMMOND exhibited a male patient with

TRAUMATIC HYSTERIA.

He had been injured July 11, 1885, by falling upon a sharp-pointed iron rod one inch in diameter, which penetrated into the right submaxillary region about one and one-third inches from the median line. It passed in about four inches in a direction upward, backward, and inward. Dr. Philip Zenner, of Cincinnati, saw the patient a half hour subsequent to the accident, and has described his symptoms in the *Medical Record*. He was then suffering from paralysis of the right arm and leg, right side of the face, tongue, and palate. There was complete anæsthesia of the left side of the face, and loss of taste on the left side of the tongue and of smell in the left nostril. There was intense pain in the region supplied by the middle division of the fifth nerve. He consulted Dr. Hammond for the relief of this pain, and his advice was to excise the middle division of the nerve. The patient was sent by him to St. Luke's Hospital, where Dr. Robert Abbe operated November 16th. The nerve was excised almost to Meckel's ganglion. The next day the patient was again examined. The intense facial pain had disappeared, and the anæsthesia of the two other divisions of the fifth had also disappeared. The senses of smell and taste were restored, and the hemiplegia was markedly improved. At the present time, seven weeks after the operation, there has been no relapse. Dr. Hammond's conclusion was: that although a certain amount of organic lesion was undoubtedly present, yet the fact that so many symptoms were relieved by an operation which would not have affected them at all if they had been produced by a central lesion, showed conclusively that hysteria must be regarded as the sole cause of their production.

DR. C. L. DANA asked if the whole side of the tongue was affected, and was answered in the affirmative. He stated that he had seen the patient previously, and that

the gain in motor power since the operation was little, that there was still considerable loss of power and rigidity. There was no doubt that he had a genuine trauma at the base of the brain, and that he now has an organic lesion upon which some hysteria is superimposed.

DR. FREDERICK PETERSON did not think that a true ankle clonus, such as was obtained in this case, could be obtained in simple and pure hysteria. He had not met with true clonus in hysteria, but had frequently observed what Gowers describes as a spurious clonus, due to a half voluntary contraction of calf-muscles, and which Gowers considers characteristic of hysteria.

DR. B. SACHS believed that an actual clonus is observed in pure functional neuroses at times, and stated that such cases are cited by Oppenheim. He thought the marked hysterical element in this case and the rapid improvement made it possibly one of hysteria. He asked if there were any hysterical symptoms in the previous history of the case, and was answered in the negative.

DR. HAMMOND closed the discussion by saying he thought there was a real organic lesion also in the case, but that the anæsthesia, part of the hemiplegia, and the loss of taste and smell were hysterical.

DR. ISAAC OTT, of Easton, Pa., then read a paper upon the

THERMO-POLYPNŒIC CENTRE AND THERMOTAXIS,

the following being his conclusions from sixty experiments:

1. The thermo-polypnœic centre is situated in the gray matter about the third ventricle, at its anterior part.

2. This centre acts reflexly, so that when heat is thrown on the body the sensory impulses excited by the heat are conveyed to the polypnœic centre, which stirs up the respiratory centre to throw off heat. It stands between heat production on one side and heat dissipation on the other.

3. The fall of the number of respirations by the heat after the removal of the polypnœic centre is due to an excitation of fibres running in the vagi, which inhibit the respiratory centre.

4. The normal temperature of the body is not necessarily dependent upon the amount of heat produced or dissipated, for human calorimetry shows that the heat production varies, but that the temperature remains nearly the same. The relation of heat production to heat dissipation decides the temperature.

5. The cortical centres, the cruciate and Sylvian, are thermotaxic.

6. The four basal thermotaxic centres are situated as follows: one in the caudate nucleus, one in the gray matter beneath the caudate nucleus, another in the gray matter about the most anterior part of the third ventricle, and still another in the anterior inner end of the optic thalamus in the gray matter about the third ventricle.

7. These six thermotaxic centres are more circumscribed than Dr. Gerard, of Geneva, believes.

8. These six thermotaxic centres are neither thermo-inhibitory nor thermo-excitor, but thermotaxic; that is, they maintain the balance between heat production and heat dissipation, so that the temperature is kept normal.

9. In fever neither increased production nor increased dissipation nor high temperature are necessary, but fever is mainly a disease of thermotaxis, a disorder of the four basal thermotaxic centres. It is true in septic fever that in its initial stage heat production usually runs temporarily ahead of heat dissipation, but, exceptionally, both are immediately diminished.

10. Antipyretics do not necessarily inhibit or excite heat production or heat dissipation, but act upon the thermotaxic centres disordered by fever agents to restore order on normal thermotaxis. Prof. Chittenden's careful researches prove that in healthy hungry rabbits moderate doses of quinine exercise, at most, only a very slight depressing influence on body temperature, and have but a minimum effect upon the production of carbonic acid.

11. D'Arsonval's calorimeter for animals and men, as modified by the writer, is less liable to error than any other, as the agitator can be worked without opening the instrument or hardly disturbing the sawdust covering.

12. Human calorimetry shows that an adult after a full meal produces between 300 and 400 heat units per hour and not 110 calorics, as Helmholtz theoretically obtained.

DR. DANA did not question the truth of the author's statements. But what interpretation should we make of the six thermotaxic centres he had described? Can the bodily temperature be regulated without them at all? He referred to a case of his that he had recently published, in which, although there was no cerebrum, basal ganglia or cerebellum and only part of the pons, yet the temperature was normal. The facts of human pathology should be brought into harmony with these physiological experiments,

DR. OTT said it was difficult to understand the regulation of temperature in Dr. Dana's monster. Injuries to the corpus striatum disturb the temperature, but the other thermotaxic centres serve to regulate it.

DR. H. W. BERG then read a paper upon

ECLAMPSIA INFANTUM IN ITS RELATION TO FEVER,

in which he took the ground that febrile eclampsia calls into activity two sets of nerve-centres, the thermogenic and the convulsive. An alteration or lesion is produced in the thermogenic centre by excessive hyperæmia, anæmia or some minute structural change, causing a rise of temperature; secondarily, it affects the unstable convulsive centre in the medulla, especially in infants whose medullæ are in an exalted state of irritation. He thought it probable that the motor and thermic nerves are intermingled in the medulla, and thus an irritation of one results in irritation of the other. Thus fever produces convulsions in children, while the process may at times be reversed, as in the status epilepticus, where, after a period of convulsion, the temperature begins to rise, and, as Bourneville has pointed out, may reach an enormous height. He would treat febrile eclampsia, not with antispasmodics, but with antipyretic remedies; in other words, treat the cause of the convulsions. In this he had had gratifying success in the use of antipyrine and antifebrine together with cold or tepid sponging with equal parts of water and alcohol.

DR. OTT said that children, no doubt, have feeble thermogenic centres.

DR. WM. LESZYNSKY referred to a report of his some years ago of twenty or more cases of status epilepticus in which the rise in temperature did not accord with the statements of Bourneville. As to treatment, he thought simple sponging with alcohol and water sufficient, and

that the use of the wet pack or of antipyretics was objectionable.

DR. WEBER asked Dr. Ott if antipyrin and phenacetin act by assisting the system in the dissipation of heat.

DR. OTT stated that antipyrin probably decreases heat production and increases heat dissipation. The same would be true of phenacetin.

DR. WEBER thought dependence must not be placed upon antipyretics in severe cases of infantile eclampsia. Chloroform should be administered by inhalation or chloral injected per rectum. He had seen cold water injected with success.

DR. SACHS did not believe the relation of eclampsia and fever exactly that of effect and cause. Were convulsion due to high fever, it would be curious that in a fever preceded at its onset by convulsion, although the temperature continues high or increases, yet there are no subsequent convulsions. The fever in epilepsy was not due to excessive muscular exercise. A case of his with hystero-epilepsy had recently had as many as two hundred convulsions in twenty-four hours, but without any elevation of temperature.

DR. HARWOOD had treated eclampsia with chloroform and with the wet pack, and could heartily endorse the conclusions of Dr. Berg as to hydrotherapeusis.

DR. BERG, in closing the discussion, said he thought the instance cited by Dr. Sachs, of a fever ushered in by convulsion, yet without further eclampsic seizures, in spite of the continuance of the fever, did not carry as much weight with it as would at first appear, for Hughlings Jackson had pointed out that the convulsive centres could become so exhausted that the fits would not be repeated. He prefers the wet pack now to sponging, because refrigeration by the latter method is more rapid and more dangerous. He had seen pneumonia produced by sponging. The pack is less harmful.

NEWS ITEMS.

Quarantine Conference.—Dr. Jerome Cochran, Health Officer of the State of Alabama, has just issued the following circular letter.

Under a joint resolution of the General Assembly, the Governor of the State of Alabama has issued to the Governors of the States of Texas, Florida, Louisiana, Mississippi, South Carolina, North Carolina, Georgia, Tennessee, Kentucky, and Illinois, invitations to appoint delegates to a quarantine conference to be held in the city of Montgomery, beginning on Tuesday the 5th of March, next, and to continue for such number of days as the business in hand may render necessary.

About two weeks ago, Dr. C. P. Wilkinson, President of the Board of Health of the State of Louisiana, addressed a circular letter to the health authorities of these same States, suggesting a similar conference to be held in the city of Jacksonville, Florida. Dr. Cochran has been in correspondence with Dr. Wikinson, and the assemblage of the proposed conference in Montgomery meets with his approval.

The object of the conference cannot be easily overrated. It is to formulate in a way that will command the confidence of the general public and of the civil and sanitary authorities of the States concerned, and in the light of our latest experience and information, the principles and regulations which should govern our Southern quarantines, and at the same time to arrange such plans for harmony and concert of action as may seem practicable and desirable.

It is earnestly desired that all of the States included in the invitation shall be represented in the conference by full delegations of such of their citizens as are best fitted to discuss the theoretical and practical problems involved in the rational administration of quarantine in the South. The occasion ought to be made a very memorable one.

The conference proper will be composed exclusively of the duly accredited delegates of the States; but other persons interested in quarantine matters will be heartily welcomed to seats on the floor, and to take such part in the discussions as under the circumstances may seem expedient.

To facilitate the work of the conference, experts, believed to be specially qualified, will be requested to formulate in advance for discussion, a series of propositions covering the subjects of maritime quarantine, railroad quarantine, municipal quarantine, depopulation of infected towns, refugee camps, panics, stampedes, disinfection, health certificates, etc.

The assistance and coöperation of all who have had experience in the management of quarantines, and of all who have studied the progress of epidemics of yellow fever are desired, and suggestions through the mails will be thankfully received by Dr. Cochran, at Montgomery, Alabama.

The American Physiological Association.—A regular meeting of the American Physiological Association was held in the rooms of Jefferson Medical College, Philadelphia, on December 29, and at the University of Pennsylvania on December 31. A number of interesting communications were read. Professor Reichert recounted experiments showing that the anterior columns of the spinal cord possessed no irritability of their own, or that the power of excitability was confined to the posterior sensory columns. He also showed that the rate of transmission of a nervous impulse differed under different conditions. Dr. J. Warren described some recent experiments showing that a sensory impulse, such as the explosion of a torpedo, reinforced the knee-jerk, and drew the curve showing the variation of this reinforcement with the interval between the sensation and the knee-jerk. Dr. Donaldson showed specimens from which it could be seen that the effect of a long electrical stimulation was to decrease the size of the nuclei of ganglion-cells, and that the amount of this shrinkage was roughly proportional to the duration of the stimulation. Professor Martin in one paper gave the determinations of the minimal and maximal temperatures consistent with life that the blood supplied to an isolated heart could undergo, and in another showed that the variation in the amount of carbonic acid given off by a normal frog and one kept in the dark was due to the optical and not the psychic differences of the two states, because a frog depriv ed o its cerebral hemispheres acts in this respect just like a normal frog. All of these papers led to interesting discussions; and the discussion of Dr. Reichert's paper induced Dr. S. Weir Mitchell to place at the disposal of the Society two hundred dollars, to be devoted towards

aiding research upon the rate of nervous transmission, especially in man.

The Society was hospitably entertained, and found much pleasure in visiting the laboratories of the Jefferson Medical College and the University of Pennsylvania. The members of the Society were invited tc participate in the International Congress of Physiologists to be held at Basle in 1889.—*Science*, Jan. 4, 1889.

House-drainage.—Dr. J. S. Billings, in an interesting article in the January *Popular Science Monthly*, lays down the following principles of house-drainage:

1. Have no more fixtures and pipes than are really necessary, and have all the fixtures as close to the soil-pipes as possible. Do not put fixed wash-basins in any sleeping-room, nor any fixture in such a position that its outlet-pipe must run horizontally, or nearly so, beneath the floor for a distance of more than ten feet before it discharges into the soil-pipe.

2. Avoid, as far as possible, the placing of fixtures in the basement or cellar of the house. In a house properly constructed from a sanitary point of view, the basement or cellar should be entirely given up to heating and ventilating arrangements and to storage, and should not contain either kitchen, laundry, sinks, or closets. All the pipes for drainage, water, gas, etc., should be plainly visible and readily accessible on the ceilings or walls of this lower story, and this cannot be effected if kitchen-sinks or laundry-tubs are placed on the lowest floor.

3. Soil-pipes should be of cast-iron, of the kind known as extra heavy, and, for an ordinary dwelling-house, should be four inches in diameter, weighing about thirteen pounds per foot run. If the soil-pipe must be carried beneath the floor of the cellar or basement, it should be either bedded in cement or put in a brick trench with a removable cover. Every joint in a soil-pipe should be so made that it will not leak when the pipe is filled with water to a height of ten feet above the joint.

4. Provision must be made for the constant passage of a current of air through the soil-pipe from the bottom to the top, and it should have no dead ends. For this purpose it is necessary that the soil-pipe should pass up through the roof and be freely open at the top.

5. In order that a current of air shall pass through the soil-pipe, it most have an opening connected with the air below as well as above. Should this air which is to pass up through the soil-pipe be taken from the sewer, or from the air of the street? In other words, should there be a trap in the soil-pipe between the house and the sewer, with a fresh-air inlet between the trap and the house, or should the trap be omitted and the sewer be ventilated directly through the soil-pipes to the tops of the houses? The reply to this is, that where there are properly constructed self-cleansing sewers, having no cesspool connections, and the house connections of which are made under the control of the engineer having charge of the sewers, it is well to omit the trap between house and sewer, and let the latter ventilate directly through the soil-pipes; but exception should be made to this where the top of a soil-pipe would be on a level with or below the windows of inhabited rooms in a neighboring house. When the house-drains are connected with a cesspool, or with a sewer presenting the characters of a cesspool, it is safer to insert the trap; in which case there should always be a fresh-air opening between the trap and the house. If the pipes and fixtures in a house are properly arranged, and the joints are all tight, there is very little risk to the inhabitants of the house itself in having a direct connection with an ordinary sewer without a trap; the danger really being to the inhabitants of neighboring houses. On the other hand, if the trap between the sewer and the house be properly inserted, it creates no risk of danger or nuisance in the house to which it is applied, and costs little. The argument that it checks discharges from the house and tends to produce deposit in the horizontal part of the soil-pipes next to it on the house side, is unsound if this part of the pipe has a proper fall and the top of the trap is six inches below the pipe; for I have examined pipes which had been twelve years in use under such circumstances, and found no deposit worth speaking of. The question is of more importance taken in connection with the ventilation of sewers by street openings as affecting the comfort and health of the community generally than it is to the individual householder.

6. The incasing of fixtures in wood should be avoided as far as possible. The best bath-tubs and wash-basins are those in which the overflow is through a stand-pipe which is lifted to discharge the water, thus avoiding side or end overflows. The best closets are wash-out, short-hopper, or siphon-jet closets. Every closet should have its own cistern, and the flushing-pipe from the cistern should be not less than one and a half inches in diameter. Housemaids' sinks should have a flushing-rim and a separate cistern. Fixed laundry-tubs should never be made of wood. Urinals in a private house are usually an unnecessary nuisance; if put in, they must be cleansed frequently by rubbing. It is better that fixtures should be opposite windows than against outer walls, to avoid dark places beneath and around them, and to prevent danger of freezing the pipes.

7. To prevent the passage of soil-pipe and sewer gases, with their suspended microörganisms, through the fixtures into the house, some form of trap must be used, and this should always be placed as close as possible to the fixture which it is to guard. The best form of trap under all ordinary circumstances is a water-trap made by a bend in the pipe, forming what are known to all plumbers as S or half-S traps. Such a trap, so long as it preserves its water-seal, affords ample protection against both gases and bacteria, and, in ordinary dwelling houses, it is easily protected against the loss of its seal by evaportion or by siphonage. If a fixture remains unused for several months, its trap becomes unsealed by evaporation. In the trap to the outlet-pipe from an ordinary wash-basin this will occur in about two months if the trap is not ventilated, and in about two weeks if it is ventilated. As regards siphonage, the proper ventilation of the traps is a sufficient protection in all ordinary habitations of three or four stories. The ventilation of traps is not, however, solely for the prevention of siphonage; it is of equal if not greater importance to secure a current of air through all parts of the pipes so as to promote the constant oxidation and remove the slime which lines all pipes devoted to house-drainage. The immediate agents which produce this oxidation or slow burning of the organic matter which smears the interior of the pipes are those bacteria which are called aërobic, because they flourish best where there is plenty of oxygen. These are Nature's scavengers: the great majority

of them are not dangerous to health, but rather tend to destroy or starve out the really dangerous specific forms. They convert the soil-pipe slime into gases and soluble products, which products are washed away by the next flush of water; and they should be given a fair chance to do their work by giving them plenty of air. Where a closet is only three or four feet from the soil-pipe, this ventilation is not necessary for keeping the pipe clear; but it is more than ever necessary to prevent the siphonage. It is only under such circumstances that I would use a trap specially difficult to siphon and without ventilation; but such a trap should be cleansed every six months, for a trap which will not siphon will collect filth.

8. Whether the work be for construction or for repair, see that skilled workmen are employed upon it.

New York State Medical Society.—In addition to the papers already announced, the following have been promised for the meeting of the New York State Medical Society, beginning in Albany on Tuesday, February 5, 1889, at 10 A.M.

"The Treatment of the So-called Perityphlitic Abscesses," by Robert F. Weir.

"Basedow's Disease," by H. A. Hopkins.

"Cranial Measurements in Twenty Cases of Infantile Cerebral Hemiplegia," by Edward D. Fisher and Frederick Peterson.

"Cases Illustrating the Curative Effect of Convex Glasses in the Strabismus of Young Children."

"On Some of the Minor Types of Pneumonia," by T. E. Satterthwaite.

"The Practical Application of Acoustics to the Physical Signs of the Human Chest in Diagnosis," by J. R. Leaming.

"The Importance of the Early Recognition of Cancer of the Cervix Uteri," by Henry C. Coe.

"Office Photography with the Flash Light," by Henry G. Piffard.

"Inferior Dental Neurectomy," by J. H. Glass.

"Vaginal Hysterectomy," by James B. Hunter.

"Septic Poisoning in Early Life," by Henry D. Chapin.

"Amblyopia in Diabetes," by W. O. Moore.

Gentlemen who propose to discuss any of these papers will confer a favor by sending their names to Dr. Roosa, 20 East Thirtieth Street, New York, without delay.

A provisional programme will be sent to the members of the Society the last week in January.

Alum in Bread.—PROFESSOR J. W. MALLET, of the University of Virginia, has been pursuing an interesting course of investigations into the effects produced by the use of alum in bread, and has found that, as has long been assumed, it is injurious. In the United States the greater part of the baking powders sold, it has been found, are made with alum, the acid phosphate of calcium, bicarbonate of soda, and starch. The result of Professor Mallet's inquiry, as given in the *Pharmaceutical Journal*, has been to show that these powders give off very varying proportions of carbonic acid gas, and therefore different proportions have to be used for the same quantity of flour to produce the requisite porosity in bread. When moistened with water they yield small quantities of aluminium and calcium salts in a soluble form. Most of them leave, after use, the greater part of their alumina in the form of phosphate; but when acid phosphate of calcium is not used alumina is left. As the baking temperature in the interior of bread does not exceed 212° F., neither the water of combination of alumina or of its phosphate is removed from the residues of baking powder so used. However, in doses not very greatly exceeding such quantities as may be derived from bread as commonly used, Professor Mallet has found that hydrate and phosphate of alumina produced an inhibitory effect upon gastric digestion. He considers that this effect is probably a consequence of the union of alumina with the acid of the gastric juice, and at the same time of the precipitation of the organic peptic ferment in an insoluble condition like a kind of lake. A similar action may also be exerted by hydrate of alumina upon some of the organic matters of food. From the general nature of the results obtained, it is inferred that not only alum itself is injurious, but that likewise the residues resulting from its use in bread-making must be ranked as objectionable, and that the practice of adding alum should be studiously avoided when the object aimed at is to make wholesome bread.—*British Medical Journal*, January 5, 1889.

NOTES AND QUERIES.

ATROPHY OF THE SECRETING GLANDS OF THE STOMACH.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of January 12th, I find this paragraph as the opening of the editorial article on "Atrophy of the Secreting Glands of the Stomach." It reads as follows: "The obscurity which always surrounds the diagnosis of atrophy of the gastric mucosa has been brought prominently into notice by the death of a well-known physician of this city, in whose case this diagnosis was accurately made—post-mortem," and it is further stated that "certainty in diagnosis has not yet been attained" by our present methods.

Permit me, from my own knowledge, to say of the case to which I suppose reference is made, that the diagnosis was accurately made during life, and that its correctness was confirmed post-mortem, but that the case was not one of gastric atrophy.

Of the nature of the disease it is not my province to speak—that belongs to another, and will, in due time, be made known. The disease was chiefly of the stomach, but not of the character inferred in the article. Yours, very truly,

MORRIS LONGSTRETH.

PHILADELPHIA, January 17, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JANUARY 19, 1889.

DICKSON, A. H., *Passed Assistant Surgeon.*—Detached from the "Pensacola," and ordered to the "Atlanta."

OLCOTT, F. W., *Assistant Surgeon.*—Detached from the "Atlanta," and ordered to the "Vermont."

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

THE ETIOLOGY OF DIPHTHERIA.[1]

BY B. K. RACHFORD, M.D.,

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FOR several years it has been the opinion of quite a number of eminent bacteriologists that diphtheria is a local disease and that the constitutional symptoms are produced by poisonous materials absorbed from the local lesion. It is the object of this paper to inquire into the truth or falsity of this opinion and to study certain other points relating to the etiology of this disease.

The present state of our knowledge derived from bacteriological investigations is as follows:

The most experienced bacteriologists have failed to find in the blood or tissues of animals any microorganisms which could possibly be etiologically related to diphtheria.

Every diphtheritic membrane contains many species of bacteria; these are chiefly those which normally inhabit the mouth, but septic bacteria are also almost always found.

Löffler found a streptococcus in the membrane which on injection into the ear of a rabbit produced a local disease erysipelatous in nature, and on injection into the blood of rabbits produced pyæmia. He also found a streptococcus in scarlatinous diphtheria which spread from the seat of infection through the entire body; this same coccus he found in other diseases which spread from a lesion of the mucous membrane.

To these organisms Löffler himself attaches no etiological significance. He describes, however, another bacterium which he believes is at least one of the causes of true diphtheria. It is a bacillus about the length of the tubercle bacillus, somewhat thicker, and found in the pseudo-membrane at the deepest part of the exudation, but never in the blood or tissues. Cultures on various nutrient media produced a white growth in two days. Guinea-pigs and small fowls died, after subcutaneous inoculation, with a white exudation at the needle wound. If cultures were pencilled into the open trachea of rabbits, fowls, and pigeons, there appeared a widely distributed and characteristic pseudo-membrane. These bacilli were not found in every case of diphtheria; they required a broken surface for inoculation. Young animals were more susceptible to their action than old. They were found in one out of thirty examinations in the mouth of a healthy person. These experiments have been generally accepted as trustworthy by all bacteriologists. Recently d'Espine, of Geneva, "has never failed to find Löffler's bacillus in true diphtheria and has produced the disease by inoculating with pure cultures."

To say the least, this bacillus, which only grows on the surface and is never found in the body, merits careful consideration in studying the etiology of this disease.

Let us now proceed to the study of this question from a clinical standpoint.

At the onset it will be necessary for us to inquire whether our knowledge of the action of bacteria in producing disease is consistent with the local nature of a disease with such severe constitutional symptoms. In answering this inquiry it will only be necessary for us to cite certain facts well established by experimental inoculations.

(*a*) Some bacteria in their growth in organic matter produce poisonous alkaloids or ptomaines.

(*b*) These alkaloids, which in several instances have been isolated, analyzed, and obtained in crystalline form, will, when introduced into the bodies of animals, produce a definite chain of symptoms. One of these, viz., mydaleine, isolated by Brieger from putrefying human cadavers, gives rise to the following symptoms: increased secretion from the nose, mouth, and eyes; injection of the vessels of the ear; rise of temperature and chill; involuntary passage of urine and feces; convulsive movements, in some instances; paralysis of legs; great dyspnœa, and death.

Here we have most profound constitutional symptoms produced by a chemical product of microorganisms and not by the microörganisms themselves, for none was introduced.

It is a waste of time to cite other testimony on this point since not only experimental ptomaine poisoning, but abundant clinical testimony fully establishes the fact that it is not necessary to invoke the aid of microörganisms growing and multiplying in the body of an animal, in explanation of constitutional symptoms as profound and as severe as those of diphtheria. But we must also inquire whether the pathological changes in various parts of the body are inconsistent with the local nature of this disease.

[1] Read before the Cincinnati Academy of Medicine, January 21, 1889.

The lesions on the part of the lungs, such as pneumonia, bronchitis, and atelectasis, may be accounted for by the direct extension of the membrane and by the aspiration of foreign particles and poisonous products into the smaller bronchial tubes. Fatty degenerations of the heart, liver, and kidneys are almost constant results of fever, as shown by Welch in his Cartwright Lectures, 1888. Lymphatic enlargement, congestion, and ecchymoses of the kidneys and other organs are known to result from irritating chemical agents. These pathological changes then occurring in diphtheria are not more readily explained by supposing that a special diphtheritic germ grows and multiplies in the body than they are by adopting the local nature of the disease and attributing them to the action of poisonous products absorbed from the local lesion.

This view is, therefore, not inconsistent with either the symptomatology or pathology of diphtheria.

Let us next inquire whether the microörganisms or the ptomaines are directly responsible for the constitutional symptoms of diphtheria. This is a question which at the present time requires little argument, since the evidence furnished by the clinical history of the disease points conclusively to the fact that they are produced by ptomaines. But not only clinical observations, but also experimental inquiries seem to testify that all microörganisms, whether they grow inside or outside the body, produce constitutional symptoms only through the agency of ptomaines. Welch, in his Cartwright Lectures, 1888, carefully sums up existing testimony, and concludes that fever (which is a typical constitutional symptom), is caused by the action of "pyrogenic" chemical agents which act through the nervous system. These agents are produced by the growth and activity of cells usually vegetable, viz., bacteria, but occasionally animal, viz., biological action of cells of organized tissue.

Certain points established by the ptomaine investigations of Brieger are instructive in this connection. The ptomaines isolated by him from putrefying nitrogenous materials, while not identical, were very similar in their physiological action, differing from each other more in the intensity than in the character of the symptoms produced. These symptoms were also very like the constitutional symptoms of the acute infections. This would indicate that a like cause produced the symptoms in both instances. But a fact that bears more directly on the question under consideration is that one of these alkaloids, mydaleine when introduced into the bodies of animals, produced (as may be seen by reference to its action as given above), symptoms very similar both in character and order of appearance to those of diphtheria. Even the paralysis and heart failure occurring during an attack of diphtheria find an analogue in the paralysis and dyspnœa of mydaleine poisoning; we feel justified, therefore, in attributing these symptoms to the direct action on the nervous system of the poisonous chemical products which are producing the other symptoms.

It may be interesting in this connection to inquire into the cause of the post-diphtheritic paralysis which occurs from two to six weeks after ptomaine absorption from the local lesion has ceased. It does not seem possible that soluble alkaloids, which are so readily excreted, could be followed by symptoms directly traceable to their action so long after their disappearance from the body. The theory recently advanced by Dr. William H. Thomson, that this symptom is due to a post-diphtheritic ptomaine formed by the biological activity of the cellular elements of the body consequent upon the extensive tissue-changes occurring during convalescence is, I think, not tenable, since we have no evidence whatever that a ptomaine having such a peculiar, uniform, continuous, and selective action on the nervous tissue is ever formed, let alone by a process concerning which in this regard we know so little, but, even if such a ptomaine were formed under these conditions, it would follow not only diphtheria, but also typhoid fever, septicæmia, and other prostrating diseases, which have, with rare exceptions, no after-paralysis. We have, therefore, no satisfactory explanation of the post-diphtheritic paralysis in the direct action of ptomaines, but I think we can find a plausible explanation for this symptom in the degenerative peripheral and central nerve lesions so frequently found on careful examination. These changes in the nerve tissue probably have their origin in the action of the same ptomaines which produce paralysis and heart failure during the height of the disease, and these changes thus initiated continue, because of the leucocythemic condition of the blood and general lack of tone of the whole organism, to the production of such structural lesions that paralysis finally results. In a recent paper read before the New York Academy of Medicine, Dr. J. Lewis Smith offers several objections to the theory that diphtheritic paralysis results from anatomical changes, but these objections apply for the most part, if not exclusively, to the paralysis occurring during the attack and not to the post-diphtheritic form. The mutability and early appearance of the paralysis during an attack, argue nothing against this explanation, since at this time this symptom is produced by the direct action of ptomaines.

The fact that "cases do occur in which carefully conducted microscopical examinations reveal an apparently normal state of the nerves supplying the paralyzed part, and of that part of the cerebro-spinal axis from which the nerves arise," may be explained to accord with the above hypothesis as follows.

Post-diphtheritic paralysis is not a dangerous symptom, and the opportunities for investigating its cause by post-mortem examinations are, therefore,

comparatively rare. On the other hand, the paralysis occurring during the attack is a most dangerous symptom, and furnishes ample opportunity for the post-mortem investigation of its cause. For these reasons, then, we would suspect not only that cases would occur in which there was no structural change in the nerve tissue, but that this would be the rule and not the exception. We believe, therefore, that this is the most satisfactory explanation that has been offered for diphtheritic paralysis. During the attack it is caused by the direct action on the nervous system of poisonous products absorbed from the local lesion. After the attack it is caused by degenerative changes in the nerve tissue which were initiated by the action of these same poisons.

From what has been said it is evident that our medical knowedge at the present time points strongly to the conclusion that the constitutional symptoms of diphtheria, including the after-paralysis, are produced either directly or indirectly by ptomaines.

In the logical consideration of our topic, the next question asking solution is: Are these ptomaines formed inside the body or at the seat of the local lesion?

There is scarcely a competent observer at the present day who believes that the local lesion is a mere symptom of a constitutional disease not having any influence other than a local one on its course and duration. All recent writers on this subject agree with Dr. Jacobi in accrediting the local lesion with causing in part the septic symptoms, and greatly increasing the dangers of the disease.

The question then narrows itself down to this: Are the ptomaines formed only at the seat of the local lesions, or are they also formed in the body? In other words, do the microörganisms which cause diphtheria produce their poisons only by their growth in or upon a mucous membrane or surface of some cavity or wound which communicates with the external air, and are the constitutional symptoms always due to the absorption of these poisonous bodies by the bloodvessels and lymphatics of the part affected; or do we have, in addition to this process, these germs living and producing their poison inside the body, away from the external air, and at points remote from the local lesion? Let us see what light can be thrown upon this question by the clinical history of this disease.

In tonsillar diphtheria we have little or no fever, very slight glandular enlargement, and almost no septic or nervous symptoms. In short, the constitutional symptoms are very slight, and our attention is called to the child's throat by the local engorgement and pain, and the diagnosis is made by the characteristic local lesion. The explanation for this is, that the tonsillar tissue being so poorly supplied with lymphatics, does not furnish the means for the ready absorption of the poisonous materials formed on its surface, and, therefore, the constitutional symptoms which are produced by these poisons are present only in a very slight degree. This in itself is sufficient proof that tonsillar diphtheria is a purely local disease. For, if the tonsillar disease were but the local expression of a constitutional malady, or if it were the initial lesion of a constitutional disease, then the symptoms would not be dependent, as we know them to be, on the lymphatic distribution of the part affected not only for their intensity, but for their very existence throughout the course of the disease.

The fact that a certain amount of absorption does take place in tonsillar diphtheria, as is shown by the slight constitutional symptoms and lymphatic enlargement, clearly proves that the diphtheritic germs, if they could live within the body, would find ample opportunity for entrance, at least in small numbers, into the blood and tissues of the animal.

The fact, which is amply proven by clinical testimony, that the ptomaines of diphtheria are very virulent, would strongly indicate, since these are the weapons with which the germs fight, that the lymph-cells and other elements of the body would wage a very unequal contest with these organisms should they find an entrance into the body.

The fact apparently proven by Watson Cheyne's investigations, that the dose of the virus in very susceptible animals has nothing to do with the course or termination of the disease, since some children are certainly very susceptible to diphtheria, would indicate, in connection with the two facts just recited and the clinical history of the disease, that the diphtheritic germs cannot live in the body of an animal. For, if this were not the case, the germ's facility of entering the body, its rapid multiplication, and the virulence of its ptomaines, would enable it to produce just as severe and fatal disease when the local lesion is in the tonsil as when it is in the nasal cavity. Probably the only influence which the size of the dose of the virus absorbed from these surfaces could have on the course of the disease, would be in lengthening or shortening the stage of incubation.

For these reasons, then, we conclude not only that tonsillar diphtheria is a purely local disease, but that the diphtheritic germ is strictly an external parasite.

Nasal diphtheria is a dangerous and dreaded disease, which gives us a clinical picture in which it is hard to trace any resemblance to the tonsillar disease which we have just described. Its characteristics are: high fever, great glandular enlargement of the deep cervical lymphatics, profound nervous symptoms; in fact, the constitutional symptoms so overshadow the local symptoms, that the latter, from a prognostic standpoint, are scarcely to be regarded at all, and are only of interest to us from a diagnostic standpoint, unless the local lesion is in some manner responsible for the constitutional symptoms,

then they would have an immense therapeutic and prognostic import to us, and such, in fact, is the case.

Dr. Jacobi says that on the thorough irrigation and disinfection of the nasal cavities hangs every life in nasal diphtheria, and just in proportion to the thoroughness and frequency of the washing of the local lesions, the fever, the septic symptoms, and the cervical lymphangitis are abated. The explanation for this is apparent to the merest novice in medicine, viz., the parts are so cleansed of the poisonous materials, which, on absorption, are causing the constitutional symptoms, that only the minimum amount of this material is left behind to be taken up by the thirsty lymphatics and bloodvessels of this very vascular part, probably of all surfaces, in or on the body, the best adapted for absorption.

If diphtheria is ever a constitutional malady, it is so in just this form we are describing, and yet, we have in this extract from its clinical history the most direct testimony that it is purely local.

That the profound constitutional symptoms are not produced by diphtheritic germs, growing and multiplying in the blood or tissues of the child, is amply proven by the fact that these symptoms are abated by treating the local lesion. For, if the diphtheritic germs found entrance into the body, and could grow and multiply there to the extent of producing the deep septic symptoms of that disease, as well might we hope to influence the constitutional symptoms of syphilis by washing the chancre, as to hope to influence the symptoms of diphtheria by washing the gateway by which these germs entered. Our knowledge of the physiological properties of bacteria plainly teaches us that these germs would multiply so rapidly in the body, if the conditions were favorable, and they certainly would be if such profound symptoms resulted from their action there, that the comparatively small portion absorbed from the local lesion during the course of the disease would have no appreciable effect on the symptoms, and the washing away of these germs, and the products of their growth could not in any way influence the course of the disease. For these reasons, then, diphtheria is a purely local disease.

That the deep glandular enlargement is not due to the migration of diphtheritic germs along the lymphatics is, in like manner, amply proven by the fact, that this enlargement begins to disappear with the thorough irrigation and disinfection of the nasal mucous membrane upon which the lymphatics communicating with the enlarged glands open. If the germs migrated to the lymphatic glands and there produced irritation by their development, then the glands themselves would be the site of an active diphtheritic process, and the disease would continue whether the source of the contagion were removed or not. This, as we have just seen, is not the case, and, therefore, the lymphatic enlargement cannot be thus explained.

On the other hand, if the glandular enlargement be due to irritation of chemical products taken up by the lymphatics from the seat of the disease, then this enlargement would abate when the surface of absorption was kept clean and free from the poisonous materials which was causing the irritation, and this, as we have before noted, is the case. The fact that this explanation of the glandular enlargement is supported by clinical observations is very strong testimony in proof of the strictly local origin of diphtheria; for, if the diphtheritic germs ever thrive in any part at all removed from the local lesion and within the tissue of the animal, it must be in the neighboring lymphatic glands. The occasional long-continued or permanent enlargement of the lymphatics following diphtheria can be readily explained by allowing that diphtheria, like other local diseases or injuries, may awaken in the glands a latent tuberculosis, or syphilis, which remains as an active disease after the diphtheria has disappeared. This lymphatic disease would, in turn, cause a chronic irritation or congestion of the mucous membrane of the nose and throat, which would, by reason of the fact that it furnishes a favorable soil, predispose to a second attack. This, it seems, is a much better explanation than to suppose, as Dr. Jacobi does, that the enlarged glands contain the latent diphtheritic germs which are called to the surface and into activity by some local irritation of the throat or nose, especially since this explanation, as we have shown above, seems inconsistent with clinical facts. Again, if second and third attacks of diphtheria are to be explained by the lymphatic glands holding the latent germs, then these germs would be called to the surface at a point where the lymphatic distribution communicating with the diseased glands was freest, viz., the nasal mucous membrane, and the vast majority of second and third attacks would, therefore, be primarily nasal; but this, every clinictian knows, is not the case.

If, on the other hand, the explanation be sought in some chronic irritation of the mucous membrane of the nose and throat, resulting from such causes as lymphatic tuberculosis and syphilis, which upon slight provocation would furnish a predisposing factor in a favorable soil for the growth of the germ, then the disease would first appear with greatest frequency, other things being equal; at the point in the throat most exposed to the diphtheritic poison, viz., on the tonsils and pharynx; and further than this, one attack of diphtheria would predispose to other attacks not in most persons, but only in those in whom there was a previous constitutional blight or latent disease of the lymphatics, by reason of which the mucous membrane of the throat and nose

did not return to a normal condition after the subsidence of the diphtheritic attack. The number of the second and third attacks is so small in proportion to the number of first attacks that they can readily be accounted for in this way. Further than this, it is my belief that one attack of diphtheria not only does not predispose to other attacks, except in the way mentioned, but, on the other hand, gives temporary immunity in proportion to the severity of its constitutional symptoms. The more severe the attack the longer the period of immunity. The fact that second and third attacks are usually mild and, as a rule, follow mild first attacks, lends support to this view.

Immunity is the most obscure chapter relating to the infectious diseases. We know that there is a natural immunity and an acquired immunity against *self-limited* infectious diseases. Of the latter, we know that it results from a previous attack of these diseases. It occurs to us that the causes which give to these diseases the characteristic of self-limitation and check their progress must be the same which give the after-immunity. If this be true, diseases such as malaria which do not confer immunity are not self-limited. Why is the convalescent diphtheritic patient not always reinfected by his own virus? Why does he not contract the disease from his brother and sister who are suffering from it during his convalescence? Why does not the membrane return to the tonsils after an excursion into the pharynx, larynx, or nasal cavity? These questions, I think, can best be answered by supposing that the disease has been terminated by the acquisition of a temporary immunity on the part of the patient, which continues for a longer or shorter time protecting him against future attacks. The occasional second and third attacks occurring during convalescence, even if they be due to reinfection, are but exceptions, which show the value of this pro tection.

The limits of this paper will not permit the further consideration of our topic from a clinical standpoint, reference only can be made to the fact that when diphtheria attacks the larynx, which is almost devoid of lymphatics, we have an example of a purely local disease without constitutional symptoms and when it attacks the trachea, which has not a very free lymphatic distribution and is filled with mucous glands, we have a severe local disease with mild constitutional symptoms. From clinical evidence we arrive at the conclusion that diphtheria is a local parasitic disease in which the constitutional symptoms are caused solely by the absorption of poisonous materials from the diseased surface, or, as Watson Cheyne puts it, by septic intoxication. The degree of this septic intoxication will depend on the anatomical structure of the part on which the germs grow, in reference to its hindering or promoting absorption.

The next question which we wish to consider is, What evidence have we, other than clinical, that the cause of diphtheria is not an *internal* parasite? Evidence purely negative in character may be obtained by an examination of the blood and tissues of animals sick or dead from this disease.

The failure of the most renowned bacteriologists to find the specific germ in the body is negative testimony of considerable value in the light of our present knowledge, although the specific germ may not as yet have been positively identified. The failure to find in the body the characteristic membrane which is the product of the growth of this germ and which we, from a clinical standpoint, have come to recognize as the *sine qua non* of its existence, is also valuable evidence on this question. If the diphtheritic germ were an internal parasite, we would expect to find in post-mortem records abundant evidence of this fact in the frequent occurrence of the membrane. Do we find this to be the case? Not by any means; but, on the other hand, in marked contrast are the findings at rare intervals, in ulcerative endocarditis complicating diphtheria, of a process resembling that of diphtheria. When these facts are considered in connection with the differing opinions of pathologists as to the exact characteristics of the membrane, it renders it far from certain that the diphtheritic growth has ever been found in the body. Inoculation experiments with matter from the diphtheritic membrane furnish abundant and apparently conclusive testimony on this question. It is quite evident that, if the germ is an internal parasite, the sure and rapid method of producing this disease would be by subcutaneous or submucous inoculation. But with the multitude of inoculation experiments that have been performed, we have no evidence whatever that the disease can ever be produced in this way; at times a diphtheritic process would be set up in the needle wound, but this undoubtedly came from surface inoculation. On the other hand, if the broken surface of a mucous membrane or wound of the skin were inoculated the disease almost always resulted. From these experiments alone I think we are warranted in the conclusion that the diphtheritic germ is not an internal parasite. It must, therefore, be strictly an external parasite incapable of living in the body of a living animal.

Let us next consider the question, Is the diphtheritic germ strictly aërobic? In other words, does it require free oxygen for its growth and development. A. d'Espine and C. Picot stated in 1877, that the membrane could only be developed in contact with the atmospheric air. Eustace Smith says: "The more usual seats of the false membrane are the tonsils, uvula, soft palate, back of the pharynx, nasal passages, larynx, and trachea; less commonly it is found on the conjunctiva, at the borders of the anus, in the vagina of girls, upon the glans penis,

wounds of the skin, and the external auditory meatus," and does not mention the stomach and intestines. It is evident from this, that the mucous membranes removed from the external air are comparatively exempt from the disease. Jacobi says: "The upper part of the œsophagus over a surface of one-half to one inch is often covered in cases of the extensive pharyngeal and laryngeal diphtheria. The upper portion of the deposit is very much like the adjoining pharyngeal membrane, but the lower part is thinned out into a mere film."

This is a good example of the further extension of the membrane being checked by the sparseness of atmospheric air. Food and water passing over the diseased surfaces in the throat furnish better facilities for the transmission of the germs into the œsophagus and stomach, than is furnished by the air for their transmission into the larynx and trachea. Yet, the latter is one of the most common, and the former a rare, site of this process. The presence of acid may account, in part, for this comparative immunity of the stomach, but, it cannot explain the rarity of the disease in the lower part of the œsophagus and the large and small intestines, since these latter might be affected by the upward extension of the membrane from the anus.

While the infrequency of the membrane on those portions of the mucous membrane of the digestive tract removed from the external air would indicate that the germ is almost aërobic; yet, its occasional appearance in the stomach and intestines would be evidence that it is not strictly so, since free oxygen is not one of the gases of the intestinal canal. The rarity with which the diphtheritic exudation is found in the stomach and intestines, would indicate that some pathological change in these parts is necessary to furnish the conditions requisite for the growth of the germs.

These conditions, we conclude from knowledge of its habitat, must be such as will furnish it with oxygen either in a free state, or in such unstable combination that it can be utilized by the germ in its growth. Such an unstable compound we have in the oxyhæmoglobin[1] of the blood. A congested and eroded mucous membrane would, therefore, be the pathological condition which would bring the germ in contact with this body from which it would derive its oxygen.

The fact that germs, such as anthrax, which are classed as strictly aërobic, can live and multiply in the body, deriving their oxygen from this source, is sufficient evidence that this explanation is not far fetched. We conclude, therefore, that the diphtheritic germ is practically, if not strictly, aërobic.

We must not fail to note that diphtheria may be complicated by the entrance into the body of septic germs taken up by lymphatics and bloodvessels from the diseased surface. In this manner we may have a true septicæmia developed with the germs causing the disease growing and multiplying in all parts of the body. This may furnish us with an explanation of the so-called malignant form of this disease and with the ulcerative endocarditis which occasionally occurs. A complication, such as this, might so overshadow the original disease, that the local treatment of the diphtheritic surface would have no appreciable effect on the constitutional symptoms, for the septic germs would find in the cellular elements of the body, weakened by the action of the diphtheritic poison, ready victims. We may also have less dangerous complications, such as abscesses about the lymphatics of the neck. These may be caused by the entrance of some of the germs known as the pus-formers, or by the awakening into activity of certain latent germs capable of producing the same condition. While these complications, which are not of frequent occurrence, may be constitutional, the orignal disease remains purely local.

In conclusion, we may summarize the following points from the arguments presented in the paper:

1. Diphtheria is a purely local disease.
2. It is caused by an external parasite.
3. This parasite is practically, if not strictly, aërobic.
4. The constitutional symptoms are due to the absorption of poisonous materials, viz., ptomaines, from the local lesion.
5. The changes occurring in the blood and tissues, including the late nerve lesions, are caused by direct or indirect action of ptomaines.
6. This disease has no latent stages, and second and third attacks are due to reinfection.
7. One attack, as a rule, gives at least temporary immunity.
8. After the limited period of immunity has expired, the previous attack may act as a predisposing cause to other attacks, if it has left the mucous membrane of the throat in an irritated and inflamed condition. This is more likely to occur in scrofulous subjects.
9. Complications may occur from the entrance into the body of septic germs.

If these nine propositions embrace the true points in the etiology of diphtheria, then they are of vital importance to us in the treatment of this disease.

Upon these propositions the following rules of treatment may be formulated:

1. Dissolve away the membrane, if possible, and irrigate thoroughly and frequently with an antiseptic solution the local lesion, for the double purpose of washing away the poisonous alkaloids and retarding the growth of the parasites.
2. In diphtheria of wounds, and in other parts

[1] That the germ might receive its oxygen from this source was suggested to me by Dr. W. S. Christopher.

where it is practicable, the thorough irrigation should be followed by a dressing which would exclude the atmospheric air. This on account of the aërobic nature of the germ.

3. We should try to relieve the system of the poisonous alkaloids by mild catharsis—free diuresis and diaphoresis, with remedies which do not have a depressing action on the heart.

4. We should seek to counteract the depressing effects of this poison on the heart and other tissues by abundant stimulation.

5. We should also seek to counteract its deteriorating influence on the blood by the free exhibition of the great blood restorer, iron.

6. We should render the air of the sick-room as nearly aseptic as possible, to prevent the entrance of adventitious septic germs.

7. Chronic glandular enlargement, or other local disease in or about the throat, left as the sequel of diphtheria, should be given the most careful consideration, and, if possible, thoroughly cured before dismissal. If this cannot be done, the patient should be warned against future exposure to the diphtheritic poison.

8. The patient should not be entirely dimissed from observation for two months after the attack, and during this time with tonics and judicious feeding we should assist nature in restoring the blood and tissues to their normal condition, that they may resist the degenerative nerve changes which cause the after-paralysis

9. A serious exacerbation of the symptoms in any form of ulceration or catarrh of the stomach or intestines occurring in a patient exposed to the diphtheritic poison should lead us to suspect diphtheria of these parts, and we should treat the case accordingly.

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SARCOMA OF THE TONSIL.[1]

BY ALEXANDER W. MACCOY, M.D.,

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Primary sarcoma of the tonsil—so far as cases have been put on record—appears to be a rare disease, and the meagre literature on the subject, as given in the *Index Medicus*, verifies this statement. This especially applies to past observations. Current literature offers a far greater proportion of cases, the years 1886 and 1887 being particularly rich. This can probably be explained by the greater zeal manifested throughout the world in the study of laryngology; in the increased number of observers now at work; together with the exact methods of study now in vogue.

The object of this paper is not so much to give a complete bibliography of the subject (although I have appended to the history of my own case an epitome of cases recorded so far as they were accessible to me), but with the hope of bringing out in discussion the comparative frequency of sarcoma of the tonsil, as shown in the wide experiences of members of this Society.

The history of my own case is as follows:

Mary A. W., mulatto, aged forty-five, native of New Jersey, married, no children, first came under my care in May, 1886. The short family history is as follows: her father died of paralysis at seventy years of age; her mother is still living and in good health, aged about seventy; a maternal aunt died at an advanced age of a tumor of the breast, said to be cancerous; an older sister of the subject of these notes also died of a tumor of the breast of a malignant character, at the age of fifty; the other children are healthy, and are still living; a niece and nephew had died of consumption of the lungs one or two years before she came under my observation. The history of her father's family was good.

Her general health had been moderately good, but her menstruation had always been very irregular. She suffered from a menstrual flow which often lasted for several months, and after ceasing would not again appear for as long as six months. This state of affairs continued during her married life. No history of abortions or miscarriages could be made out.

On the 15th of May, 1886, the patient presented herself for treatment, complaining of a soreness on the right side of her throat, which rendered deglutition somewhat painful. She stated that this soreness had only been present for a few days, and she thought was not different from what she had often had before. Her general condition was good; flesh and strength maintained perfectly. Examination revealed on the *right* side a redness with but little swelling of the tonsil, accompanied by the slightest flushing of the anterior palatine fold in its lower half. The tonsil gave all the appearances of a tonsillitis of a mild type. Appropriate treatment was advised, and, with the injunction to let me see her again the following day if not improved, she was dismissed.

At least three weeks intervened between the first and second visits. At the second visit the previous symptoms and appearances were accentuated. The tonsil was a trifle larger, and showed a cleavage through its substance irregular in direction. A probe pressed into this fissure for about one-third inch with a little force could separate the two lips for a considerable distance. In this fissure, and hanging from it, was a grayish, pultaceous, irregular mass of tissue, which was quite movable, but adherent to the bottom of the fissure; this mass gave off a fetid odor, and led me to believe that a small abscess in the tonsil had become gangrenous and the outer wall had sloughed away, causing this appearance and retaining some of the decomposed contents. There was nothing in the appearance in color or form of the tonsil to warrant an opinion of

[1] Paper read before the American Laryngological Society, Washington, September, 1888.

other than a simple inflammatory condition. The cleavage was peculiar, it is true, and yet *could* be explained as above stated. The sloughing fissure was washed out and a solution of carbolic acid, iodine, and glycerine applied. In a few days the fissure was perfectly clean and the odor gone; the redness had abated considerably. The adjacent tissues appeared healthy. The general health of the patient had not suffered nor had she lost flesh. There was no lymphatic glandular involvement whatever present, neither was there any until very late in the progress of the case.

After several weeks absence the patient again reported for treatment, having, during the interval, enjoyed freedom from any unpleasant symptoms until a few days previous, when some uneasiness and pain in swallowing occurred. The local appearances were strikingly changed, the tonsil remained comparatively small and with little appreciable change in color (indeed the tonsil itself never increased much in size, but remained throughout the disease in about the same condition), but the anterior palatine fold had become infiltrated, thickened, shiny, and grayish-red; having a zone of deeper redness, as a limiting margin, shading off quickly into sound tissue.

This involvement embraced all the ascending portion of the anterior palatine fold; the appearance of grayish-redness resembled that of a gumma in a striking degree. Upon pressure the swelling felt somewhat like that of an erysipelatous inflammation of the face—possibly less brawny. This appearance remained for a few days with a slow involvement of the half arch and palate, when suddenly a small whitish spot appeared in about the centre of this right half arch, which rapidly increased in extent and soon showed a loss of tissue in the fold—very material and threatening complete destruction of it.

There appeared to be considerable œdema bounding the destructive process: the color was darkish red. The destruction of tissue embraced a large portion of the fold, and when it had ceased the appearance of the fold and arch was ragged, thickened, and red; the uvula was well over to the opposite side. The process of involvement never completely destroyed the uvula, but for a long time did not appear to cross the median line, and at no time was there any involvement of the opposite side, although late in the disease the left side was greatly encroached upon by new developments.

A stage of quiescence intervened with a general improvement of all the symptoms, and a faint hope of arrest. Her strength and spirits were still unimpaired.

After this stage of quiescence had continued for some weeks, upon rhinoscopic and laryngoscopic examination an irregular mass of red, velvety tissue was noticed behind the posterior palatine fold. Its long diameter was vertical, and extended from a line a little below the lower line of the tonsil, and continued well up behind the palate to the margin of the Eustachian tube. This mass grew rapidly at first and pushed out prolongations laterally which were about one-half inch in thickness and appeared to spread out *over* the posterior pharyngeal wall and to be *movable* upon it, so that a probe could be passed underneath its free edge for some little distance until it came in contact with its hardened base springing from the lateral wall. This mass continued to push out and spread over until that half of the pharynx was materially encroached upon. Again there was a destructive process set up and sloughing, followed by relief of encroachment and a stage of abeyance of all activities.

This stage continued for an interval, followed by re-development in this region as well as in that of the palate. From the free and ragged edge (which had made efforts for a time to heal) there sprung out a soft, velvety fringe, red and glistening, which was accompanied by increased infiltration of the palate followed by sloughing. This process was repeated again and again during her illness until the border of the hard palate was reached on the right side where the destructive changes ceased, and toward the end of the disease the edge of the hard palate appeared to act as a breakwater to the further progress of the disease in that direction.

After the lateral and posterior wall had been subjected to repeated involvements and the space fully occupied by the growth in the region before mentioned, the *lower* portion of the mass began to interfere with the base of the tongue and somewhat with the play of the epiglottis, rendering the swallowing of fluids somewhat hazardous. This condition was, however, for the most part confined to the latter end of the disease, and for many months respiration and deglutition were accomplished with comparative comfort.

After some eight months the upper end of the growth began to make respiration through the right nostril difficult; and toward the end it became impossible. After about six or seven months the base and sides of the tongue showed implication. The tongue appeared to become involved through the medium of the lateral ligament and from there extended over the right side of the tongue, and then downward toward the base.

The disease also crept along from the angle of the jaws to the gums; from there to the mucous membrane of the cheek, and gave rise to some swelling of the cheek, externally, and inability to close the mouth. As soon as the tongue, gum, and cheek became involved the sub-maxillary gland began to swell and attained the size of a small walnut; the lymphatic glands which, appeared to be so long in showing involvement, at about eight months began to become indurated in the side of the neck and were slightly tender; they never increased much in size.

For some weeks prior to her death deglutition became very difficult and painful; respiration was impeded so much that tracheotomy seemed at times almost imperative. As soon as deglutition began to be *very* difficult—at about nine or ten months—the patient rapidly began to fail in strength and lose flesh; the emaciation was accelerated toward the end, as difficult respiration and pain were added to lack of sustenance caused by difficult deglutition.

A day before her death an attempt was made by

her relatives, against my advice, to remove her to her former home, and although warned that she would certainly die in the attempt, they carried out their wishes, and the patient died suddenly in the carriage on removal from the train.

Much to my regret, no *post-mortem* was obtainable, being out of jurisdiction.

The treatment was non-surgical, and to many it will doubtless appear strange that some active surgical measures were not instituted.

There were several factors present which prevented a prompt decision for an operation:

1. The rarity of the case and want of a clear diagnosis.

2. The want of distinctive features while the tonsil alone was involved, having all the appearance of a tonsillar inflammation, and the absence of the patient during the critical period of the few weeks when surgical interference would have been most effective.

3. A necessarily unsatisfactory report from the microscopist to whom I gave a too small portion of the growth for examination.[1]

After the involvement of the lateral and posterior wall, several consultations were held, and the opinions being adverse to a radical operation, it was abandoned.

The medical treatment consisted of the administration of Donovan's solution, beginning with the usual dose, and gradually increasing until fourteen drops were taken, three times a day. It was remarkable how large a dose could be taken for so many months without the slightest gastric derangement or constitutional injury.

The local treatment consisted of galvano-cautery, lactic acid, and, finally, for many months the application every few days of a solution of crystallized iodine and crystallized carbolic acid 1 to 4. This appeared to control or *retard* the development better than any other remedy used, and destroyed the fetor most effectually during the stages of sloughing.

The duration of this case was one year.

In an analysis[2] of 10,100 cases of tumors occurring in four of the London hospitals, extending over periods varying from nine to seventeen years, only nine cases of *primary* tumors of the tonsil appear, and of these only *one case* of sarcoma is recorded.

Mr. Butlin, in his lectures on tumors, records only nine cases of sarcoma of the tonsil. In the *Transactions of the Pathological Society of London*, 1882, p. 331, Samuel West, M.B., narrates an interesting case of sarcoma of the *right* tonsil. The subject was a woman aged seventy-four years. There was marked glandular involvement. The duration was five and a half months.

[1] Later investigation proved it a round-celled sarcoma.

[2] Sex and Tumor Formations. By W. R. Williams, F.R.C.S. Eng. London Lancet, May, 1884, p. 934.

Mr. Lennox Browne,[1] of London, at a meeting of the Medical Society of London, March, 1887, showed a patient suffering from lympho-sarcoma of the *left* tonsil, extending down the pharynx and involving the larynx.

At the Academy of Medicine,[2] in Ireland (Surgical Section), April, 1887, Mr. Henry Gray Croly read a paper on primary sarcoma of the tonsil. He detailed the history of two very interesting cases. One was that of a lad aged seventeen years, admitted into the City of Dublin Hospital, April, 1886. The history of the beginning of this attack is remarkably like that of my own case. It began like an ordinary tonsillitis in the left tonsil (also involving the soft palate),

"and so much did the swelling resemble tonsillar abscess that an exploratory incision was made by the medical gentleman who first saw the case. No pus escaped. Glandular infiltration in the digastric space showed itself. All the usual symptoms were present—painful deglutition, dyspnœa, etc. An operation was performed. A rapid reappearance necessitated another operation. A cauterization followed this second operation. The disease returned very rapidly and the lad soon died. The duration of the disease was six months."

The second case of Mr. Croly's occurred in a man over fifty years of age. The growth was confined to the tonsil (left or right not stated), and, like the other case, so much resembled tonsillar abscess that an incision was made into the tumor. Mr. Croly declined to operate, owing to glandular infiltration. The patient subsequently died from repeated hemorrhages. Duration of disease not stated.

Prof. Weinlechner[3] reports a case of sarcoma of the left tonsil in a man fifty years of age. Infiltration of the glands at angle of the jaw and subsequent involvement of the side of the pharynx; hemorrhages requiring ligature of the common carotid. The claim is made of "arrest and disappearance of the growths" from injections of a solution of ether and iodoform 1 to 10. No microscopic examination having been made, there remains an element of doubt as to the true nature of the growth.

Zeigmondy's case[4] was of the left tonsil. Operation by the galvano-cautery. Microscopical examination showed it to be a spindle-celled sarcoma.

Dr. M. H. Richardson[5] reports a case of round-celled sarcoma of the left tonsil in a woman. Externally, induration; internally, the tonsil was pushed with the pharynx to the median line. April, 1887, the tumor was successfully removed by external incision. The upper portion of the growth extended

[1] British Medical Journal, April, 1887, p. 724.

[2] British Medical Journal, June, 1887.

[3] Allgemeine Wiener medizinische Zeitung, October, 1882.

[4] Aerztl. Ber. d. k. k. allg. Krankenh. zu Wien, 1878, pp. 151–153.

[5] Boston Med. and Surg. Journal, and The International Journal of Surgery and Antiseptics, July, 1888.

to the base of the skull and was difficult of removal. The patient made a rapid recovery. Seven months after the operation there had been no recurrence of the growth. Dr. W. M. Gray,[1] Microscopist to the Army Medical Museum, Washington, D. C., has some beautiful microscopic sections of a sarcoma of the tonsil occurring in a child. The sarcoma is alveolar.

This completes the list of cases of primary sarcoma of the tonsils accessible to me, and makes in all nineteen cases,[2] including my own.

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THE RESULTS IN SEVEN OPERATIONS FOR THE RESTORATION OF THE LACERATED CERVIX UTERI.[3]

BY L. D. BROSE, M.D., PH.D.,
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IT is my intention, through the relation of these cases, to put on record the outcome of my personal experience with the Emmet operation of trachelorrhaphy, performed on what I considered proper subjects. I say proper subjects, for the reason that I do not consider it justifiable to advise or perform this operation upon every woman who chances to have her cervix uteri lacerated to more than an ordinary degree.

CASE I.—Mrs. R., æt. twenty-eight, consulted me in May, 1885, complaining of pain in the stomach, aching and tired feeling in the legs, irregular menstruation, and a gradual loss of flesh and strength. She is anæmic and suffers from irregular febrile attacks. For these symptoms a number of physicians have given her treatment for dyspepsia and malaria. She is the mother of three children, the youngest two and a half years of age, and dates her trouble from the second confinement. All of her labors have been very rapid, while the children have been of an average size. She states that the same midwife attended her in all her confinements, and that she would rupture the bag of waters immediately after coming to the bedside, labor terminating with three or four pains thereafter.

Convalescence from her puerperal periods is always slow. When she became pregnant with her third child, she picked up in flesh and apparently regained her health, only to suffer relapse after confinement.

Physical exploration.—Perineum complete. Vagina relaxed. The tissues forming the cervix uteri were greatly engorged and hypertrophied with eversion and erosion of the mucous lining of the cervical canal. There was a bilateral laceration through the circular fibres of the external os, extending higher on the left side. The position of the uterus was that of retroversion, with a sound measurement of minus three inches.

Treatment.—A Smith pessary corrected the uterine displacement, and local with constitutional treatment brought about a general improvement of health.

During the following July she became pregnant, but aborted at the end of four weeks with severe flooding. From this time on she suffered repeatedly from menorrhagia and metrorrhagia, and at times complained greatly of a bloody taste in her mouth with spitting of blood. The blunt curette was repeatedly applied, followed by applications of tincture of iodine and even fuming nitric acid. Some relief from flooding followed, but my patient became more and more anæmic and continued to suffer with irregular febrile attacks. During December of the same year she again became pregnant, with marked improvement of her general health, but abortion again followed in about four weeks. The flooding at this time was very serious and required the use of a vaginal tampon for its arrest. It returned in ten days, when after the insertion of a sponge tent into the cervical canal, a digital exploration of the uterine cavity was made, followed by the use of Sims's sharp curette and applications of Churchill's tincture of iodine. The flooding remained checked after this treatment until the next menstrual period, when she again suffered from menorrhagia.

Consent was now given for the operation of trachelorrhaphy and this was accordingly made with the use of five silver sutures. On the ninth day the wire was removed, perfect union having occurred, and my patient steadily improved and was finally restored to her usual health. Menstruation became regular and normal and the dyspeptic symptoms wholly disappeared.

On October 19, 1888, I delivered her of a strong, healthy eight pound child, after a labor of four hours duration, most of the time being taken up by dilatation of the os, and was farther gratified to have her make a rapid recovery from the puerperal period. She has discarded the pessary, and since her health continues good I have not had an opportunity of examining the cervix, to determine as to its relaceration.

CASE II.—Mrs. W., æt. twenty-five, a New England lady, consulted me in April 1886, giving a history of her first confinement eighteen months ago, since which time she has been in poor health and unable to perform her household duties. The labor was very tedious and painful owing to the child being of large size. She is troubled with whites and suffers a great deal with backache and pains in the ovarian regions, aggravated with each monthly sickness.

Physical exploration.—The uterus is in a state of subinvolution, is slightly prolapsed and retroflexed. The cervix is greatly hypertrophied, bilaterally lacerated, with eversion and erosion of its mucous lining.

Treatment.—Insertion of a Smith pessary with vaginal douches and local applications of tincture of iodine. The improvement was marked, but owing to the subinvolution and partial prolapse an operation was performed in the following May, to repair the lacerations. Seven silver sutures were employed,

[1] Since published in the American Journal of the Medical Sciences, February, 1889.

[2] Possibly twenty, if the following be a case of *primary* sarcoma, which I am unable to verify. Sarkom der beiden Tonsillen. Jahrs. ii. d. Chir. Atch. d. Spits. zu Basel (1883) 1884, pp. 29–31.

[3] Read before the Vanderburgh County Medical Society at Evansville, Ind.

after the removal of much cicatricial tissue, union becoming perfect by the ninth day, at which time all sutures were removed. Recovery of health was uninterrupted and with the support of a pessary she was soon able to perform her household duties.

September, 1888, I delivered her of a male infant weighing eight and a half pounds. The labor was very protracted, requiring some sixteen hours for complete dilatation of the os. It was necessary for her to leave her bed on the ninth day, owing to her first born having a severe attack of pneumonia, and then as a further bar to convalescence from the puerperal state, the newly born infant was attacked with severe bronchitis. The duties attending upon the sickness of these children required her to be upon her feet most of the time, occasioning by reason of this some uterine prolapse, but this was corrected by a Hodge pessary, and the patient made a good recovery from the conditions following confinement.

Case III.—Mrs. B., æt. twenty-six, a strong, healthy-looking country woman, consulted me in March, 1886, for pelvic pains, headache and backache, and an irritable bladder. She is the mother of one child some two years old, and has had a second confinement, the child, however, being born dead through the presentation being of the breech.

Physical examination.—Uterus measures minus three inches, is lower than normal, and bilaterally lacerated. The cervix is greatly hypertrophied and its mucous lining abraded. A Smith pessary was inserted and local with general treatment instituted, with benefit to the patient. May 19th, of the same year the edges of the laceration were resected freely and brought together by means of six silver sutures.

An uninterrupted recovery followed. Domestic troubles caused at this time a separation from her husband and she has since made her home with her parents.

Case IV.—Mrs. H., a German lady, æt. thirty-four years, presented herself for treatment in October, 1875. She is the mother of three girls, the youngest four years old, and since this last confinement has never regained her usual health. Her subjective symptoms are severe headaches, the pain being chiefly on the top of the head, pain in the stomach with heaviness, and dragging pains in the small of the back. Besides these symptoms she complains of leucorrhœa and acknowledges to being a very nervous person. Physical examination showed the uterus to be enlarged and heavy with a severe bilateral laceration of the cervix. The mucous membrane of the cervical canal is infiltrated and bleeds readily upon contact with the sound. The usual local treatment was instituted but without positive improvement. The headaches returned with increasing severity, associated with attacks of epistaxis, the abstraction of blood in this way affording temporary relief. She became more and more anæmic, daily congestions of the brain occurred, and lastly mental derangement followed. Irregular febrile attacks were now suffered from. The mental condition growing rapidly worse, it became necessary to be exceedingly watchful to prevent her from self-destruction. Her husband told me she frequently urged him to take his life with her, so that they might together enter the other world. These various symptoms and conditions were persistently treated with improvement of the mental condition but not total restoration. Finally consent was given to repair the laceration of the cervix uteri, and in doing this operation especial care was taken to remove as far as practicable cicatricial tissue. Seven silver sutures were placed in position and allowed to remain nine days. Good union occurred and from this onward a gradual improvement in all the symptoms followed.

Owing to Mrs. H.'s removal to Omaha some five months after the operation, I was not permitted to follow the case to its conclusion, but I have since learned through relatives that she is living happily with her family, wholly restored in mind and body.

Case V.—Mrs. M., a strong, well-developed German woman of thirty years, and the mother of two children, the youngest two years of age, consulted me for ill-health dating from her last confinement. The labor was a very protracted and painful one, and caused much mental uneasiness, owing to her living in a portion of Kansas where she was obliged to send a long distance for a physician, and labor terminating ere his arrival at the bedside. At the time of consulting me in January, 1888, she complained of congestive headaches, dysmenorrhœa, leucorrhœa, and painful digestion with irregular pelvic and back pains.

Physical examination.—Perineum complete. Position of the uterus normal. The cervix was hypertrophied, engorged, and badly lacerated on both sides, giving rise to eversion of its mucous lining. After preparatory treatment the laceration was repaired March 19th, the extent of tissue removed, necessary to secure proper coaptation, being so great as to include all the mucous membrane covering the two lips of the external os uteri. Strands of silk were inserted to reëstablish the cervical canal and the wound properly closed with seven silver sutures. On the eight and ninth days the sutures were removed, at which time union while not complete was good, and rapidly became perfect. The benefits following this operation have exceeded the expectations of the patient and likewise her doctor, headaches, dysmenorrhœa, and accompanying unpleasant symptoms wholly disappearing.

The two following cases included in this paper occured in the practice of a brother physician, whom I assisted at the time of his performing the several operations.

Case VI.—Mrs. G., a lady under twenty-six years, and the mother of one child, had a partial laceration of the perineum and a bilateral laceration of the cervix uteri. Both lacerations were repaired February 22, 1886, the edges of the cervix being brought together by catgut and the perineum closed with shotted silver sutures. Dr. —, the physician in attendance, personally drew off the urine for several days, and on the fourth day instructed the husband in the use of an English flexible catheter. Occasion arising for its use the husband attempted to pass the instrument but failed, causing his wife some pain in the effort. A short while after this, she had uternie

pain followed directly by flooding. Dr. — was hastily summoned and upon examination found the cervical laceration wholly reopened, the gut in the tissues having either given way or having been absorbed. The accident was presumably brought about by the husband passing the catheter into the vagina, against one lip of the os, and by pressure separating the partially united cervix, to which the softened gut offered no resistance. The cervix was again closed by silver wire and the patient made a good recovery, with both of the operations a success.

CASE VII.—Mrs. K., a seemingly well-developed German lady, over thirty-five years of age, and the mother of several girls, one almost grown, was operated upon by Dr. — for a multiple cervical laceration. The operation was well performed, six silver sutures being inserted. On the evening of the third day she had a chill followed by fever. Dr. — requested me to see her with him the night of the fourth day, at which time her temperature was over 105°. Antipyrin was administered with but slight reduction of bodily heat. Next morning we again saw her together, and the temperature still remaining high with frequent chills, the two lowest sutures on either side were removed, and the cavity of the uterus washed out. Death occurred the night of the fifth day due to pelvic inflammation, septic in character.

The relation of these cases besides demonstrating that this operation is capable of relieving many subjective symptoms, directs our attention to its influence on fertility and its bearing upon the character of subsequent labors. Strangely enough, the medical literature of our country as it relates to these important subjects is very incomplete. Dr. B. F. Baer, of Philadelphia, in THE MEDICAL NEWS, Feb. 24, 1883, gives as his experience, that sterility does not usually follow as a result of the operation, directly contrary to observations of Dr. P. J. Murphy, of Washington, D. C. (see *American Journal of Obstetrics* for January, 1883), who asserts that repair of laceration of the cervix uteri is usually followed by sterility.

In five of my own operations, two were followed by subsequent conception and a delivery at full term; while of the remaining three, one has lived apart from her husband and for this reason could not be expected to give anything but a sterile history, another has scarcely had one year's time to demonstrate fertility, while the third was sterile for four years preceding the operation, so that to the trachelorrhaphy cannot be assigned cause and effect.

The result of the operation in my cases bearing upon the character of subsequent labors is partially in accord with that of Dr. Murphy, who states that this is unusually protracted and severe, and that in a large percentage laceration occurs a second time.

This statement that relaceration occurs must, I think, be received with much allowance and is not at all borne out by the subsequent history of my two patients. Even if it did re-occur, I do not think that either of them would resign the benefits derived from repair of her laceration and accept her former life of ill-health.

MEDICAL PROGRESS.

Treatment of Epilepsy.—The following are the details of PROFESSOR KOWALEWSKY'S (of Kharkhow) treatment of epilepsy, as given by him in a recently published article (*Russ. Arkiv. Psych. and Neurolog.* XII., 3, 1888). He takes cases which he considers possibly curable (those in which the epilepsy dates back less than ten years) and in these he reckons the minimum period for treatment at two years. This he divides into four equal portions or semesters for convenience in detailing his method. During the first half year he gives his patient a drachm of bromide of soda or such other bromide salt as is selected, each twenty-four hours, adding usually three to five grains of iodide of soda and giving the combination in two or three equal doses in the morning, before dinner, and at night in a large quantity of water. In case there follows any decided adynamia from this quantity of the bromides he decreases the dose somewhat, or in some cases intermits it for four or five days. During this semester also he stops the treatment during the catamenia in female cases.

In order, however, to have this plan succeed, it is necessary to allow a good supporting diet, though preferably one of milk and vegetable food. If there exists any scrofulous taint, cod-liver oil or iodide of iron is also administered. In case there should be any symptoms of brominism such as headache, neuralgia, etc., in the beginning of this treatment, it is not necessary to stop the treatment, as soon as it is relaxed a little these symptoms disappear. Much advantage is had in these cases from warm baths and rubbings.

Usually this treatment causes cessation of the attacks so that the patient is free from them during the last three months of the half year. Toward the close of the semester the medication is stopped for a period from two to six weeks before beginning it again.

In the course of the second half year the quantity of bromide and iodide is reduced one-half and given in the same way, and at its end there is again an interval of two to six weeks. In the third semester only the bromide is given and in doses of five to ten grains, morning and night, keeping up the same regimen and diet. In the fourth half year he begins with only five grains per diem and later only gives the medicine at intervals of one, two, three, four, or six days. After this the bromides are discontinued and the patient is given small doses of nitroglycerine or at intervals, in some cases, tr. simulo (*capfaris coriaciac*), which is said to have a marked influence over epileptic attacks. Prof. Kowalewsky claims that he has by following out this plan of medication already had quite a number of cures, in which the attacks have not reappeared for over ten years, and that he has lost faith in the incurability of epilepsy.

Of course, in cases in which there is any specific or tubercular cause or complication the treatment must be adapted to meet the special conditions.

As regards other than medicinal treatment the author recommends electricity as an adjuvant in certain cases,

but cautions against its employment in any case in which there is a tendency to cerebral hyperæmia. He also found benefit in weak irritable anæmic cases from daily warm baths, of temperature of 25°-28° R. (88°-95° F.) for fifteen or twenty-five minutes, watching the condition and nutrition of the patient, and when these are improved using baths gradually lowered in temperature and not so prolonged. In some cases combined baths and electrical treatment are of advantage.

The author's ideas as regards diet are liberal, but he says that for all cases of epilepsy taken together, a vegetable and milk diet is best. Alcohol he forbids even in medicine, at least in the beginning of the treatment—he says he has seen the epileptic attacks revived by even a few drops of alcohol. Tea he allows in moderation, but he advises that coffee, chocolate, etc., be dispensed with at least during the treatment.

There are other points of interest in the article, but the above are the most noteworthy, especially the success that seems to have attended the author's method of using the bromides. The quantity given is certainly not large; not even in comparison with his own treatment in other cases, for he recommends as much as three or four drachms *per diem* in cases of epileptic furor. There would seem to be some special advantage in the method or the regimen presented to bring about such specially favorable results.—*American Journal of Insanity*, January, 1889.

The Treatment of Pernicious Anæmia, with Recovery.—In some remarks upon this subject (*Lancet*, Jan. 12, 1889), DR. BROADBENT said that until the publication of Dr. Byrom Bramwell's paper on the success obtained by the use of arsenic in pernicious anæmia, it was looked upon as truly progressive, and always to a fatal termination. Since that time there has been a change, and many cases have been published proving the efficacy of arsenic, recovery having frequently followed its employment; sometimes there appears to have been a relapse, and sometimes it has failed, but no treatment has yielded such good results. Iron, which in cases of ordinary anæmia is so efficacious, appears to be almost useless; but a case is recorded in which arsenic failed to cure, and the patient recovered on the administration of iron. Other treatment adapted to improve the general health, allay digestive disturbance, produce appetite, etc., has been recommended; and transfusion has been tried in some instances with success (see Coupland), but the use of arsenic is generally indicated. We dwell on this point, as a recent edition of a work on therapeutics does not draw attention to its great properties in such cases. Dr. Broadbent, in a former case which recovered, that of a woman, aged forty-three, who had been suffering for four months, gave the drug in frequent small doses, on the failure of iron, and obtained a cure in two months; in this case he followed a similar plan, giving liquor arsenicalis in two and a half minim doses every three hours.

Treatment of Baldness.—DR. LASSAR (*Therap. Ztsch.*, December, 1888) recommends for alopecia areata the following treatment: For the first six or eight weeks an experienced hand should thoroughly soap the scalp for ten minutes daily, using for this a strong tar soap. A good lather having been formed, it should be removed with an irrigator, using first lukewarm and then cold water. The cold douching will, after several repetitions, harden the scalp somewhat and prevent catching cold. After the scalp has been thoroughly dried the following lotion should be applied:

℞.—Solution of bichloride of mercury	8 grs. to 5 oz.
Glycerin Cologne water	āā ℥ij ℥v.

Then the scalp should be rubbed dry with alcohol, ninety per cent., to which one-half per cent. of naphthol has been added. The scalp now being freed from any fat whatsoever, the following is applied:

℞.—Salicylic acid	30 grains.
Tincture of benzoin	45 "
Neat's foot oil	℥iij ℥ij.—M.

This treatment carried out daily for some weeks will be followed with good results. Dandruff and itching will disappear. Hairs which are stiff and dry, become flexible and oily, and where no hair was, hundreds of small hairs will make their appearance. Of course, this only holds good when the hair-growth is not destroyed.

In very obstinate cases the following is worthy of trial:

℞.—Carbolic acid	15 grains.
Sublimed sulphur	75 "
Fat from a horse's neck	℥iss.—M.

The author relies very much upon pilocarpin, which he prescribes either in the form of an alcoholic solution or pomade:

℞.—Muriate of pilocarpin	30 grains.
Vaseline	℥v.
Lanolin	℥iiss.
Oil of lavender	25 drops.—M.

That the addition of balsam of peru to hair pomades takes the place of an antiparasite is well known and the following would make an efficient though somewhat expensive pomade:

℞.—Muriate of pilocarpin	30 grains.
Muriate of quinine	60 "
Precipitated sulphur	℥iiss.
Balsam of Peru	℥v.
Ox marrow	℥iij.

Before applying the pomade the scalp should be thoroughly washed with soap and water and allowed to dry; then the ointment should be applied, but it should not be left on too long, before being again removed with soap and reapplied.

Tar in the form of tar-baths is also an excellent remedy as well as an antiparasite.—*Münchener med. Wochenschrift*, December 25, 1888.

Curability of Cirrhosis of the Liver.—DR. MILLARD, at a late meeting of the Société Médicale des Hopitaux, of Paris, presented three patients from his private practice, in whom, after a lengthy treatment for this affection, he had been able to effect a cure.

The first was a man, fifty-five years of age, who drank regularly from four to five bottles of wine daily. Suffering from dyspepsia for several years, he, in July, 1886, began to emaciate; the supervening ascites necessitated six tappings, from which over two hundred pints of fluid were removed. Since the month of November, 1886, the

patient has been put upon an exclusive milk diet, with the administration of an infusion of juniper, and drastic purgatives twice a week. At the end of four months the improvement was already well-marked. The second patient, who partook of four pints of white wine daily, had been under the author's care for one year only. The treatment was the same as in the first case; improvement showing itself more rapidly; the patient continues in excellent health. The third patient underwent the same treatment, with greater and more marked improvement than in either of the foregoing cases.

At present the three patients seem apparently quite cured, the only remaining sign of their trouble being a slight hypertrophy of the liver.

The formula of the juniper infusion is as follows:

℞.—Juniper berries	. . . .	℥ijss.
Infused in water	. . . .	℥vjss.
Then add		
Acetate of potassium Nitrate of potassium	.	āā grs. xxx.
Oxymel of squill	. . .	℥ijss–℥j.
Syrup of five roots[1]	. . .	℥j.

The author further remarked, that he never hesitated to have recourse to tapping, whenever diuresis seemed insufficient. The only food allowed was milk; alcohol in all forms was strictly withheld. The infusion of juniper is not disagreeable to the taste. The author administered it whenever an increased urinary secretion was called for. The patients took it readily, one of them having taken it daily for eight months.—*Revue de Thérapeutique*, January 1, 1889.

Laparotomy for Ectopic Pregnancy of a Non-tubal Variety.—Professor Serghei S. Zaiaitzky, of Moscow, describes in the *Meditzinskoïe Obozrenïe*, No. 16, 1888, a successful case of abdominal section for extra-uterine gestation in a multipara, aged twenty-five. The last catamenia had occurred about the end of October, 1887. Soon afterward she began to suffer frequently from giddiness (from which she had also suffered during her previous pregnancies), while she noticed a gradual, painless enlargement of her abdomen, as well as of the breasts, with occasional oozing of milk. Four months later she began to feel fœtal movements, which, however, ceased about April 27th; the abdomen then somewhat decreased in size, and became exceedingly tender and painful. On examination, on May 30th, ectopic pregnancy—either ovarian or, more probably, abdominal—of six months' duration, with dead fœtus, suppuration of the sac, and peritonitis, was diagnosticated, and immediate laparotomy at once suggested. The woman, however, hesitated for a few days, until the pains became intolerable and vomiting came on with fever and rigors and rapidly increasing prostration.

On June 8th Dr. Zaiaitzky made a median incision down to the peritoneum, which was found to be thickened and adherent to a thin-walled fœtal sac. The latter having been cut into, very offensive, cinnamon-brown, purulent matter escaped, and an almost black, macerated, and softened female fœtus was extracted. The sac proved to consist of fibrinous membranes adherent to the omentum, bowels, and the right Fallopian tube near its abdominal opening. The fimbriæ were considerably thickened, congested and covered with false membranes resulting from recent perisalpingitis, but the oviduct presented no sign whatever of having been ruptured or dilated. The tube was ligatured about its middle, and its external portion removed with the adherent placenta and sac, after which the peritoneal cavity was washed out with corrosive sublimate lotion and three drainage tubes were inserted (one through the vaginal fornix). The operation lasted about an hour. The temperature fell to normal the same evening. On the seventh day the drainage tubes were removed. On the 22d the woman was discharged quite well.

This case proves beyond any reasonable doubt that extra-uterine gestation may sometimes be of non-tubal origin. The only change found about the oviduct was an inflammatory hypertrophy of the abdominal end of the tube. No clinical symptoms of a tubal rupture had ever been present.

In the *Meditzinskoïe Obozrenïe*, No. 1, 1888, Dr. Zaiaitzky described another successful case of laparotomy for tubo-ligamentary gestation (variety 2 *c*, according to Mr. Lawson Tait's scheme) of six months standing in a multipara, aged twenty-three. The whole sac was removed. No drainage was used. On the twenty-fourth day the patient was shown well and strong at the Moscow Obstetrical and Gynecological Society.—*British Medical Journal*, January 5, 1889.

Simple Treatment of Acute Coryza.—The *Schweizer Wochenschrift für Pharmacie*, No. 49, gives the following simple treatment for this affection:

Put one teaspoonful of powdered camphor in a cone-shaped vessel, filled with boiling water, and covered with a cornucopia, the top of which is then torn off just enough to admit the nose, and the warm camphor-vapor inhaled from ten to fifteen minutes. A repetition of this procedure after four or five hours, will generally suffice to effect a cure.—*Correspondence Blatt. f. Schweizer Aerzte*, January, 1889.

Papayotin in Fissures of the Tongue.—Dr. Schwimmer has used papayotin (which is also known as papain) successfully in cases which had resisted the action of chromic acid, iodoform, and nitrate of silver. He employed the following formula:

℞.— Papayotin	. . . .	1 to 2 parts.
Glycerin Water	. . .	āā 10 parts.—M.

Five or six applications should be made daily, after drying the fissures.—*Amer. Journal of Pharmacy*, Jan. 1889.

Phenic Acid in the Treatment of Diphtheria.—Dr. Gaucger, from ninety-nine observations made with this remedy in the treatment of diphtheria, deduces the following conclusions:

1. The treatment of diphtheritic sore throat by ablation of the false membrane and cauterizations with phenic acid is applicable to children as well as adults.

[1] Syrup of five roots (sirop des cinq racines) is a French diuretic preparation, composed of the following roots: Ash, fennel, parsley, asparagus, and small holly, each 1 part, and sugar 30 parts.

2. All adults, and *almost* all children, treated by this method have recovered. (The restriction refers to very small children, with whom treatment was begun very late, or with whom croup set in rapidly.)

3. Applied in time, this treatment can prevent croup, as has been often observed by Dr. Dubousquet.

4. Even after tracheotomy the continuation of the treatment of the throat symptoms by this same method is essential.

The formula of the application employed for washing and cauterizing the throat is as follows:

Crystallized phenic acid	75 to 150 grains.
Camphor	ʒv–ʒj.
Tartaric acid	11 grains.
Alcohol (36°) } Olive oil }	āā ʒiiss.

Besides applying the above morning and evening the throat should be irrigated every two hours with a one per cent. phenic acid solution.—*Revue Thérapeutique*, January 1, 1889.

Alopecia Areata a Communicable Disease.—DR. O. LASSAR has demonstrated through a number of cases that the great increase of alopecia areata is due to the facility with which this disease is communicated to both young and old. Pillows and headgear, the barber's combs and brushes, have all in their turn been the medium of infection. It is to avoid such infection that the Berlin authorities, at the instigation of Dr. Koch, have concluded not to supply combs and brushes for general use at the public baths.

Dandruff alopecia is very infectious, and of the accuracy of this statement, the following small epidemics are cited as proof. Ten customers of a certain barber after having had their hair cut, began to lose their hair, and finally became completely bald. The further spread of this epidemic was prevented by the disinfection of the barber's instruments and utensils.

Twenty Parisian firemen suffered from alopecia areata the cause of which was traceable to their having used the same pillow, while stationed in a certain part of the town.—*Correspondenz Blatt für Schweizer Aerzte*, January, 1889.

A Mercurial Soap.—DR. SVETULKHIN (*Russk. medits*), in order to facilitate the absorption of pleuritic effusions, employs a soap, to which he has given the name of sapo kalinus hydrargyrosus, made by mixing together metallic mercury, mercurial ointment, caustic potash, and olive oil; one-third of the weight of the soap being mercury. The author claims that it is more easily applied than the mercurial ointment and less irritating to the skin.

To apply it take from a half to one drachm and agitate thoroughly in hot water, till it forms a soapy mass. In the treatment of serous pleuritic effusion, one or two applications are generally followed by rapid improvement, and the disappearance of all unfavorable symptoms is observed after the twentieth application.—*Nouveaux remèdes*, December 24, 1888.

Prophylaxis in Cerebro-spinal Meningitis.—The Berlin police intend to issue the following regulations to prevent the spread of cerebro-spinal meningitis: 1. Every physician shall at once report to the police any case that comes to his knowledge. 2. Patients are to be isolated. 3. The children of families in which there are cases are to be kept from school. 4. The sick rooms, expectorated matter, linen, handkerchiefs, clothes, and other belongings of the patient used during the illness are to be cleaned and disinfected.—*Lancet*, January 5, 1889.

Hydrochlorate of Apomorphine.—This drug has been extensively tried by DR. SOCQUART, of Bruxelles, as a remedy for certain kinds of coughs, particularly in distressing and frequent hacking, unattended with expectoration, or with exceedingly difficult expectoration. It is, as a rule, well borne, although a few individuals manifest a special susceptibility to its action, and rarely nausea, colic, or diarrhœa result from its administration. The dose is about $\frac{1}{20}$ of a grain, taken in water once in twenty-four hours. As the solution rapidly alters by keeping, it is advised to prevent its decomposition by the addition of a few drops of hydrochloric acid, which does not interfere with its therapeutic effects.—*Amer. Journ. of Pharm.*, Jan. 1889.

Pancreatin in the Treatment of Atrophic Catarrh of the Stomach.—In atrophy of the gastric glands or in the so-called atrophic catarrh of the stomach, the results obtained from therapeutic measures have thus far not been positive; it being impossible to restore the already degenerated glands. Being convinced that neither hydrochloric acid nor pepsin or any other remedies were of any use in the treatment of this affection, DR. REICHMANN, of Warsaw, tried in ten cases (out of one hundred and seven cases treated for various gastric affections) an alcoholic extract of the pancreas (twelve to fifteen per cent.) and pancreatin, and was soon convinced that the formerly sluggish chyme digestion was now properly performed, the general condition of the patients being greatly improved.—*Deutsche med. Wochenschrift*, Dec. 27, 1888.

For Gastralgia and Vomiting.—

℞.—Muriate of morphia	4 grains.
Muriate of cocaine	5 to 8 grains.
Tincture of belladonna	ʒjss–ʒijss.
Bitter almond water	ʒvjss.—M.

Sig.—Ten to fifteen drops every hour.—*Centrbl. f. d. ges. Therapie*, January, 1889.

The Juniper Berry as a Diuretic.—According to the *British Medical Journal*, Jan. 12, 1889, DR. GOLDSCHMID, of Fehraltdorf, highly praises the inspissated recent juice of common juniper berries as the best diuretic in children. Attention was drawn to this remedy by Dr. J. Vogel, of Dorpat, in his classical handbook on children's diseases. While being most effective, the remedy is exceedingly mild and altogether free from any unpleasant accessory effect. Two or three teaspoonfuls should be given daily, diluted with water and sweetened with sugar. The little patients take it very readily. The author describes a severe case of nephritic dropsy in a girl, aged seven, in which the juice rapidly induced a profuse diuresis, a complete and permanent recovery ensuing in a fortnight.

Five Cases of Extra-uterine Pregnancy.—DR. FASOAL (*Ann. di. Ost. et Gin.*, 1888, Nos. 4 and 5) reports that of 1565 cases of pregnancy treated between the years

1883 and 1885 at the clinic of Dr. Chiara, only five were of extra-uterine pregnancy. In one of these cases in which it was impossible to diagnosticated either tubal or ovarian pregnancy, the liquid contents of the ovum were removed through vaginal aspiration, and this was followed by a series of applications of the electrical current; these applications generally terminated with severe pain, which stopped abruptly twenty days after beginning the treatment. A slight hemorrhage then followed, accompanied by a discharge of uterine secretions and a diminution in the size of the tumor which became hard and encysted.

In the second case, which was followed by the death of the fœtus through rupture of the ovum into the peritoneal cavity, laparotomy was performed, after the death of the mother, and revealed a seven month abdominal pregnancy.

The three remaining cases terminated in rupture of the cyst and recovered without surgical interference.—*L'Union Médicale*, December 27, 1888.

Thymol in the Treatment of Tuberculosis. — DR. W. PHILIPOWICZ has administered thymol to 38 patients, 17 of whom were treated exclusively with this remedy, whereas the remaining 21 were given the preparation after diarrhœa had set in. The results of the first group were: 10 improvements and 4 deaths, while 3 remained under treatment. The results of the second group are not given, as the treatment was not a uniform one. Thymol was administered in daily doses of 45 grains, being given in gelatine capsules, in which medium the burning taste of the drug was less noticeable. Under the administration of thymol a diarrhœa will generally disappear in from two to four days, except when there exists amyloid degeneration of the intestinal walls. The drug can be taken for some time without producing any harmful effects; in fact, it seemed to the author that under its administration both the appetite and digestion were improved. In hæmoptysis it diminished the cough and the expectoration, it lowered the temperature, produced a gain in the body weight; in short, a general improvement of the bodily condition, except in cases in which the disease was too far advanced.—*Wiener med. Presse*, Jan. 6, 1889.

Trigeminal Neuralgia.—

℞.—Butyl-chloral hydrate . . 30 to 75 grains.
Alcohol . . . . . ʒiiss.
Glycerin . . . . . ʒv.
Water . . . . . ʒiv.—M.

From three to four tablespoonfuls at a dose when required.—*Centrbl. f. d. ges. Therapie*, January, 1889.

Hereditary Syphilis.—At a recent meeting of the Imperial Royal Society of Physicians of Vienna, PROFESSOR NEUMANN read a paper on hereditary syphilis and presented the following conclusions: 1. A syphilitic mother may convey the disease to her offspring at any stage of her affection, whether the infection had taken place before or after the conception. 2. A mother who had contracted the disease after conception sometimes transmitted it to the fœtus. In the case of a pure post-conceptional syphilis the transmission of the affection to the child was extremely rare, and particularly when the mother had become infected in the last months of pregnancy. 3. When the infection of the mother had taken place after conception, and the father was syphilitic at the time of procreation, the effect on the offspring was greatly intensified; the children in these cases died *in utero*, or were born with signs of syphilis. 4. In the case of post-conceptional syphilis, where the infector was unknown, the proportion was the same as in pure post-conceptional syphilis; syphilis acquired in the last months of pregnancy was usually transmitted to the offspring. 5. When infection and conception occurred at the same time, the children died in one-half of the cases. It was nevertheless remarkable that a great part of the offspring remained free from syphilis, in spite of the fact that the disease was in an active state in both the parents at the time of conception. This disproved the assertion that a healthy child could never be born when both parents were syphilitic at the time of conception. On the other hand, the assertion that healthy children were born only when the syphilis of the parents was seven years old, was also negatived. 6. In the case of infection before conception, the period at which conception occurred had to be taken into account; the longer the interval between infection and conception, the more favorable was the prognosis of the offspring. 7. The offspring had the best chance when the mother only contracted syphilis in the last months of pregnancy, while the father was healthy at the time of procreation; the same was also true of the offspring of parents suffering from tertiary syphilis. The offspring had the least chance when infection and conception had occurred simultaneously, or when the father was suffering from recent syphilis at the time of procreation. 8. This last observation also elucidated the question as to paternal syphilis. It was especially these cases in which the father was syphilitic at the time of procreation, and the mother became infected only after conception, and the child was soon after the infection born in a macerated condition, which proved the extremely injurious nature of paternal syphilis. This was opposed to the observations of Boeck and Deware, who stated that the child of a syphilitic father was always healthy. These data, concluded Professor Neumann, showed the sad fate of the children of syphilitic parents, as, out of one hundred and nine cases, only forty-four were born healthy, and according to inquiries made by Dr. Friedinger, director of the Vienna Foundling Hospital, only the minority of them lived. Hereditary syphilis must, therefore, be considered one of the most terrible plagues of infant life.—*British Med. Journal*, Jan. 12, 1889.

Treatment of Infantile Typhoid Fever.—LEGROUX and PARAT recommend the following formula in cases in which the diarrhœa is marked.

℞.—Salicylate of bismuth }
Naphthol } . . āā 40 grs—M.

Divide into six powders; give one nearly every hour in unleavened bread, or milk, in either of which it is well retained, without nauseating the little patient.

If the diarrhœa is not troublesome, the bismuth can be dispensed with. If constipation is a prominent feature, administer:

℞.—Naphthol . . . . 40 grains.
Salicylate of magnesia . . 40 to 90 grains.

Divide into six powders, one every hour.—*Gazette Médical de Montreal*, December, 1888.

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RUPTURE OF THE HEART.

MEYER reports from the Pathological Institute of Munich (*Deutsches Archiv für klinische Medicin*, Bd. 43, Hefte 4 and 5) 9 cases of this rare condition, and analyzes 25 cases which have been recorded in the literature since 1870. As indicating the rarity of heart rupture, he states that of the 12,000 to 13,000 sections made at the Munich Institute, since 1854, there have been only 7 cases.

The older writers believed that a normal heart might break or rupture, owing to an excess of intraventricular pressure, the result of a sudden vascular disturbance due to psychical causes; but a review of more modern literature would seem to establish definitely the fact that some prior change invariably exists in the muscle. In several cases there has been a new growth in the cardiac wall; in one instance, an echinococcus cyst determined the rupture; and, occasionally, ulcerative endocarditis, when mural, will perforate and cause death by hemorrhage into the pericardium. Practically, the great majority of cases depend upon two conditions — myocarditis and fatty degeneration. What we term myocarditis is usually the result of a lesion of a branch of the coronary artery; either an acute endarteritis, such as may occur in the specific fevers, or a chronic sclerosis of the vessel which leads to a fibroid condition of the muscle. The local disturbances of nutrition caused by the blocking of a terminal branch of a coronary artery produce the condition known as infarct of the heart; or, as it is sometimes called, anæmic necrosis. To this softening, which may be extreme, the term myomalacia has been applied by Zeigler. The danger is not alone at the period of preliminary softening, but time gradually effects a transformation of the softened areas into fibrous tissue, which yield and lead in many cases to aneurism of the cardiac wall and rupture.

In fatty degeneration we know that the most extreme grade may be reached without danger to the integrity of the heart muscle, so long as the process is uniform, but a localized fatty change which follows the gradual obliteration by endarteritis of a branch supplying a limited area of the cardiac wall, seems to precede rupture in a number of cases.

The relation of arterio-sclerosis to the changes which are associated with heart rupture, is indicated by the fact that in the majority of cases the patients are advanced in life. The mean age in Elléaume's cases was sixty-five years.

The left ventricle is the one most frequently involved. In Meyer's cases, in 25 the rupture was of the left ventricle, 7 of the right ventricle, and 4 of the right auricle. The apex of the left ventricle is usually the site of the laceration, probably, because it is in the long branch of the left coronary artery which supplies this region that the most frequent atheromatous degeneration is found. Moreover, here, at the point of the left ventricle the muscular layers are thin. The tear is usually small, but in one instance it extended from the base to the apex of the ventricle. More commonly, the opening is of a fistulous character, and oblique in direction. There may be as many as five separate breaks. The rupture is not necessarily followed by immediate death; there are cases in which the symptoms have persisted for hours or even days, probably, owing to the fact that a small laceration has occurred and which has gradually extended.

In a number of cases death occurs suddenly, without any premonition; in other cases, precordial distress, pain in the left side, and signs of cardiac trouble have preceded the fatal illness for days or even weeks.

The determining cause is not infrequently severe muscular exertion. Emotion, as excessive grief or excessive joy, though popularly believed to be frequently the cause of a broken heart, is in reality rarely mentioned as a determining factor. Undoubtedly, the direct cause of death is compression of the heart by the effused blood within the pericardium. Spontaneous healing is scarcely possible

when the perforation is direct or complete. But there is a case on record in which the pericardium adhered around the orifice with the production of an aneurismal sac, which finally led to death by perforation into the pleura.

PHENACETIN.

THE question as to the value of phenacetin as an antipyretic and analgesic is at last being determined with some degree of certainty. The studies of Hinsberg and Kast, of Rumpf, and of many other accurate observers, both in this country and abroad, have, heretofore, frequently been pregnant with contradictions and failure, and while the drug has been lauded by continental writers it has failed in England and America.

In the *Deutsche medicinische Wochenschrift* of December 13 and 20, 1888, MAHNERT, of Graz, has, in a communication entitled: "Phenacetin from a Physiological and Clinical Standpoint," given us the results of his experience with this compound. In the instances where he employed it to reduce temperature, the fall produced by it was very marked. Thus, in one case of rheumatic polyarthritis fourteen grains of phenacetin caused the temperature to fall from 102.2° to 97.8° in five hours, followed by a rise of 2.7°. The pulse-tracings before and after the use of the drug, when compared gave no evidence of cardiac depression. In another instance a temperature of 102.9° was reduced in three hours to 98.6° by twenty-three grains, but rose again in five hours to 104°, and finally reached, three hours later, almost 104.3°. At this point the drug was used again in the same dose, and there ensued a steady fall of temperature to 96.8° in five hours, remaining at this point for one hour, when it began to rise again, and in two hours reached 104° once more.

The conclusions to be drawn from these studies on the action of phenacetin in fever seem to be that it is no better than any other pure antipyretic, such as antipyrin, and that it lowers temperature much more slowly than do most of the other members of the group. Therefore, it can be employed for the reduction of temperature, not where a hyperpyrexia threatens life and a rapid fall is required, but where a more slow and persistent influence is desired.

As to its analgesic effects, our information is more meagre but more concordant. So far as we are aware, phenacetin certainly gives relief in locomotor ataxia, and in some forms of neuralgia, and the experiences of Mahnert are in accord with this belief. It may be used in headache in the dose of five to ten or even fifteen grains, provided the pain is neuralgic in character; it also has been highly praised in ovarian neuralgia and hemicrania, and in various other evidences of morbid nervous states.

THE State Board of Health of New York in the early part of the week notified the health boards in all parts of the State that the smallpox had become threatening in the Onondaga County Poorhouse, the penitentiary at Syracuse, and at Lyons and other places in Central New York. They urge all the people to get vaccinated, and directed a special lookout to be kept for tramps.

THE Boston Medical Library Association, last Tuesday evening, gave a reception to Dr. Oliver Wendell Holmes, its President from 1875 to 1888, when his medical library was formally presented to the Association and accepted.

THE Middleton-Goldsmith Lecture for 1889 will be delivered before the New York Pathological Society, on February 16th, at 8.30 P.M., at the hall of the Academy of Medicine, by Dr. R. H. Fitz, of Boston. The subject will be "Acute Pancreatitis, with an especial Consideration of Pancreatic Hemorrhage, Hemorrhagic Pancreatitis, and Subperitoneal Fat Necrosis."

A MUNICIPAL hospital for contagious diseases is about to be built for the city of Brooklyn. A plot of ground has been purchased at a cost of sixteen thousand dollars, and the further sum of sixty-five thousand dollars has been appropriated for buildings, which will be erected under the direction of the Commissioner of Health. The plans have been prepared upon the pavilion system and will admit of as many structures, rapidly and cheaply built, as any possible emergency may demand. The accommodations will be such that patients who can pay for private rooms may be received as well as others whose treatment is a public charge.

THE Empress Augusta has offered, in connection with the German Society of the Red Cross, a prize of $2500 for the best portable military hospital. The award will be made at an exhibition to be held in Berlin, in June. All countries are invited to exhibit.

In the matter of the publication in the *British Medical Journal*, in breach of professional confidence, of the "script" of the late Emperor Frederick reflecting upon one of his medical attendants, the Council of the British Medical Association, at a meeting held on January 16th, directed a letter to be addressed to Sir Joseph Lister, as the representative of the signatories to the memorials forwarded to the Council in December, stating that the Council "having received and published an expression of regret from the Editor, and having themselves expressed their strong disapproval at the publication of anything in the least degree tending to a violation of professional confidence, they feel that they have done everything which was necessary to vindicate the honor of the Association and of the profession." The Council also forwarded to Professor von Bergmann a copy of the resolution of disapproval passed last November.

The Eighth Congress for Internal Medicine will be held at Wiesbaden, Germany, on April 15 to 18, 1889. Professor von Liebermeister, of Tübingen, has been chosen President. Professor Schultze, of Bonn, will deliver an address in commemoration of Dr. Rühle. Among the principal subjects to be brought up for discussion are: Ileus and its treatment; and the nature and treatment of gout. Besides these a number of papers have been already sent in, including ones by Professor Immermann, of Basel, Professor Fürbringer, of Berlin, Dr. L. Lewin, of Berlin, and others.

A Naval Examining Board is now in session at the U. S. Naval Hospital, Philadelphia, for the examination of candidates for admission into the Medical Corps of the Navy as Assistant Surgeons. The Board will remain in Philadelphia until the 31st of March, 1889, and after that date it will hold its sessions at the Naval Hospital, Brooklyn, N. Y. There are fourteen vacancies in the grade of Assistant Surgeons.

REVIEWS.

Transactions of the Association of American Physicians. Third Session, held at Washington, D. C., September 18, 19, and 20, 1888. Volume III. 8vo. pp. xx., 404. Philadelphia, 1888.

This is the largest and most valuable volume which has yet been issued by this vigorous Association, and it represents the work done at the meeting held in conjunction with the late Congress of American Physicians and Surgeons. It contains twenty-five papers of a uniformly high standard of excellence and of marked practical value.

Where there is so much to praise it seems invidious to single out any one paper for notice, but since no adequate abstract of it was at the time published, we cannot refrain from calling attention to Dr. Jacobi's valuable contribution to the anatomy and pathology of the thymus gland, which is richly illustrated by fourteen plates. The groups of papers on typhoid fever, on the relative value of albumin and casts in the urine, on diseases of the heart, on the treatment of phthisis, on the relation between trophic lesions and diseases of the nervous system, and on antiseptic medication reflect the latest and best thought of the day, and are deserving of careful study. Dr. Sternberg's paper on his recent researches on the etiology of yellow fever, although negative in its conclusions, is also timely and valuable.

SOCIETY PROCEEDINGS.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, January 21, 1889.

The Vice-President, Willam Judkins, M.D., in the Chair.

Dr. B. K. Rachford read a paper on

THE ETIOLOGY OF DIPHTHERIA.

(See page 113.)

Dr. Robert W. Stewart did not think there could be any doubt among those who treated diphtheria as to its local character. It at least begins as a local disease; and the constitutional symptoms come on later. There were, however, one or two things which the speaker would not like to accept as dogmatically as the essayist presented them. First of these was that, by treating the local manifestations, we may hope to abate the constitutional symptoms. There is certainly something about this disease, in its inception, in its course, and in its results, that indicates more than merely a local character. It is, perhaps, a local disease for only a short time. He feared that the term "diphtheria" is used to cover a multitude of sins. He did not believe, for example, that the tonsillar diphtheria, as we usually see it is the same disease as the virulent nasal diphtheria which sometimes occurs.

Dr. L. Freeman remarked that the opinion expressed by the last speaker as to the variety of the affections grouped under the designation diphtheria was that held by Löffler, Flügge, and a number of other bacteriologists. Baginsky, in his recent work on *Diseases of Children*, supports this view. These all hold that there are a number of diphtherias, each due to a special microorganism.

Dr. C. W. Tangeman spoke of the occasional occurrence of diphtheria of the conjunctiva, of the eyeball and lids, and stated that a case of this character had come under his observation within the past two weeks. The poison, when attacking the eye, does not manifest always the same degree of virulence, as it sometimes destroys the globe within from thirty-six to forty-eight hours, whereas, at other times, it pursues more of a

chronic course. He expressed disappointment that Dr. Rachford had not advanced anything that might aid us in the prevention of such accidents as the inoculation of the eyeball, or that would cut short the course of the disease when once developed.

DR. J. L. CLEVELAND thought that Dr. Rachford had given us a very valuable hint as to the best means for the prevention of the accidents referred to by the last speaker, when he pointed out the fact that the micro-organism of diphtheria is, in all probability, an external parasite, incapable of existence within the body of man. This, he thought, gave us some hope that we may be able to do something, both for the prevention of the inoculation of external parts of the body, and for the prevention of constitutional manifestations. Most of us are too much in the habit of considering diphtheria a merely constitutional disease from the start, and, although we treat it locally, we do not expect much result. The paper explained another point which had repeatedly been observed by the speaker, and that was the tendency of the disease when seated in the trachea to extend downward. He could not, however, accept the theory that one attack of diphtheria confers immunity from succeeding attacks, as he had repeatedly seen a second, and, in a few instances, a third attack in the same individual. In this respect he thought the popular idea is correct.

DR. G. S. MITCHELL thought there was a good deal of truth in the idea of immunity. A few years ago he had held to the view that diphtheria is a constitutional disease from the start; now he considers it both local and constitutional. He had seen cases in which the redness of the fauces, the pain, and the elevation of temperature preceded by twenty-four to thirty-six hours the exudation in the fauces. He thought it probable that he had, in some instances, done more harm than good in the forcible treatment of children affected with this disease, and that the wedging apart of the teeth and the thrusting of a brush into the fauces were capable of aggravating the constitutional disturbance, He now resorted more to the use of sprays of the benzoate of soda and other alkalies, trusting further to constitutional treatment.

DR. WILLIAM JUDKINS had formerly believed that immunity was conferred by one attack of diphtheria, but he had, within the last eighteen months, abandoned that idea, from the occurrence of a second attack in former patients.

DR. E. E. SATTLER was a firm believer in the local character of diphtheria, and he believed that the disease is diphtheria wherever it is found. In times of cholera, we have mild cases, in which there is only a little diarrhœa; in times of typhoid fever, we have walking cases; and in times of scarlet fever, we meet with very mild cases; so we may have every variety of diphtheria. The variety of the disease may depend upon the amount of poison that is taken into the system, but that is a point on which we know too little to engage in discussion, as we do not know what is the cause of the disease. As regards the ptomaines, it is a question whether the bacilli, which Löffler and Klebs show to be present, may not simply carry the alkaloids which happen to be present into the system, or are, as the essayist asserts, produced by the bacilli at the point of entrance into the system. The speaker thought that, in the majority of instances, tonsillar diphtheria precedes the nasal development of the disease. As regards post-diphtheritic paralysis, he could not agree that it is due to degenerative changes in the nerve-cells or nerve-endings, for, if this were the case, the affection would not so readily yield to treatment.

DR. A. N. ELLIS inquired why, if diphtheria is a local disease, we have a membrane formed on any abrasion which happens to occur in the skin of the patient suffering from the disease. Does not the poison reach the abrasion through the blood-circulation?

DR. JOSEPH RANSOHOFF replied to this that he had seen very many slight wounds in the skin of children suffering from this disease, and that he had not once seen diphtheria develop in them. He had but once seen it follow tracheotomy. In the text-books we read that many cases die of wound diphtheritis. This he thought a peculiar survival of a misstatement. The fact that so many wounds escape infection the speaker held as one of the strongest corroborative evidences of the local character of the disease.

As regards the question of immunity, he did not think that one attack protected the individual from subsequent attacks. Immunity is a quality which belongs to constitutional diseases. It is an attribute of venereal diseases. Syphilis, a constitutional disease, confers immunity, whereas gonorrhœa, a local disease does not. In the light of the paper under discussion, he said that if he had occasion to treat a wound in a diphtheritic subject in the future, he would seal the wound up as tightly as it could be sealed.

DR. T. P. WHITE asked Dr. Rachford to explain how the albuminuria which sometimes follows diphtheria originates. Is it or is it not due to the action of the ptomaines?

DR. DAVID DEBECK said that diphtheritic conjunctivitis always occurs synchronously with the tonsillar or pharyngeal lesions of the disease. It is, however, an affection that is almost never seen in this country. It is as rare as is leprosy. As regards diphtheritic ophthalmoplegias, they support the idea that paralysis occurs more frequently in mild cases. He did not recall an instance of paralysis affecting the eye as a result of a severe attack of diphtheria. They also support the theory that the paralysis is due not to organic, but to functional disturbance, and that the disease is local. The ophthalmic infection in diphtheria is not a direct result of the disease, but is indirect.

DR. GEORGE W. RYAN stated that his experience with post-diphtheritic paralysis had been that it was very amenable to treatment. He looked upon the cases as hardly needing faradization. It is customary to give the patients tonics, and a little massage. This would rather contraindicate the presence of nerve degeneration, or, if such be present, it must be very slight in degree.

DR. WALTER S. CHRISTOPHER, at the request of Dr. Rachford, stated that the gases of the intestinal canal are, for the most part, of a reducing character, that is, directly the opposite of oxidizing. We find that the most prominent gas is carbonic acid gas, which, while it contains some oxygen is not an oxidizing product. Marsh gas is also present, and free hydrogen and also nitrogen to a certain degree, but analysis has failed to show the presence of any oxygen. In a recent experiment of introducing into the intestine a large quantity of oxygen for the purpose of conveying the gas through the portal

circulation to assist the liver in the destruction of ptomaines, and perhaps in certain other of its functions, it was demonstrated that when oxygen comes into contact with the mucous membrane of the intestine, it is taken up into the blood almost as readily as it is absorbed by the capillaries of the lungs, showing that the intestine may perform a respiratory function. This shows us further, that if oxygen is formed or introduced into the intestinal canal it is in all probability readily absorbed. He thought that, in the case of the germs of diphtheria finding lodgement in the intestinal canal, it was probable that they obtained their oxygen from the intestinal wall, just as other germs do. The union between the oxygen and the hæmoglobin in oxy-hæmoglobin, although chemical in its nature, is so feeble as to constitute little more than a mechanical union, very readily disturbed.

Dr. Rachford, in concluding the discussion, stated that it had not been his desire to present anything new or startling in the study of diphtheria. It had rather been his desire to study the testimony in regard to the disease from various sources, and from it to arrive at conclusions not arrived at by others. He had tried to avoid dogmatic statements, and, previous to making any statement, had given the testimony upon which he had based it. The statement which Dr. Stewart has pronounced as dogmatic, had been taken directly from one of the greatest authors of the day, Jacobi, and the argument he had made in that connection had been made solely on the strength of that statement.

He expressed surprise that his statements had met with so much support this evening, inasmuch as they were not orthodox. Few of his conclusions, in fact, were at all orthodox. That the disease is local, is not orthodox; that it is due to a germ, has not been altogether recognized; that the germ is aërobic is not orthodox; that one attack gives temporary immunity, is contrary to the statements of Jacobi, Smith, and other writers. He thought that the varying severity of the constitutional symptoms is best explained as due to the entrance of the germs of decomposition into the blood, not as a part of the disease, but as an accompaniment of it.

The question as to why certain diseases are self-limiting, is a perplexing one. Why is it that any of these self-limiting diseases stop of their own accord? We do not know, and we can only suppose, that some change has taken place which terminates the disease; and it seems reasonable to suppose that the condition which brought about this cessation of the disease would give immunity. And a point which he brought out in the paper was that, therefore, self-limited diseases upon this theoretical ground, must necessarily produce a certain amount of immunity—at least, a temporary immunity—for it is the acquisition of this immunity which terminates the disease. Why is it that the disease does not return again to a former spot in the throat; why does the individual not become re-inoculated after the disease has in part subsided? He was aware that Jacobi, who believes that the patient may become re-inoculated, recommends that the patient be frequently changed from one room to another, in order that he may escape from his own virus; but he did not think that clinical experience will support this theory. Why, too, is it that one little patient running about the room during convalescence will not be re-infected from his brother, who is going through an attack subsequent to his?

Yet, there is reason to believe that the immunity does not exist for any great length of time. It may last for one, two, or three years, owing to the severity of the constitutional symptoms. If the throat has been left in an inflamed and irritated condition by the disease, so that there is a favorable soil for the lodgement of germs, then the previous attack will predispose to a second. This, he stated, was most likely to occur in individuals in ill health, scrofulous, tuberculous persons.

As to the explanation of kidney trouble, the speaker referred to the fact that certain chemical reagents, when introduced into the body, will bring about very marked changes, fatty degeneration, etc., and various other changes, such as we find in the kidneys. The microscope does not reveal these agents. It is not in every case of albuminuria that we find microörganisms. The testimony of the microscope is not, therefore, of much value. As albuminuria is not necessarily due to the entrance of germs, that which follows diphtheria may have an entirely different origin.

In regard to the asserted presence of degenerative changes in the nerves as a cause of the post-diphtheritic paralysis, the essayist did not agree with the previous speakers that such degeneration would necessarily argue an unfavorable prognosis. On the contrary, Welch, in his Cartwright lecture, shows that fatty degenerations in the liver, kidneys, and other organs result from fever. He further shows that these degenerations rapidly disappear after the subsidence of the fever. The speaker saw no reason that the degenerative processes which develop during the course of diphtheria as a result of the direct action of ptomaines, might not as rapidly disappear upon the subsidence of the cause. It is not rational to suppose that a soluble alkaloid will remain in a body six, eight, or ten weeks after the disease has subsided, and then produce a paralysis. It is, however, reasonable to suppose that the ptomaines may have acted in such a way as to produce a slight change, to set up a certain degenerative process, but not to such an extent as to produce paralysis; but afterward, on account of the low condition of the body, on account of the leucocythæmic condition of the blood, and the low condition of the patient generally, this degeneration will continue until, four, five, or six weeks after the attack, paralysis will be produced. The arguments against this view by J. Lewis Smith are those presented in the paper, namely, that the paralyses are frequently degenerative, and may occur early. These cases are not those which occur after the attack, but those which occur during the attack, and are a result of the direct action of the ptomaines.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 17, 1889.

The President, A. Jacobi, M.D., in the Chair.

Dr. Paul Gibier, Assistant to the Chair of Pathology of the Museum of Paris, read a paper on

YELLOW FEVER: AN EXPERIMENTAL RESEARCH ON ITS ETIOLOGY.

(See The Medical News, January 26, page 91.)

DR. L. DUNCAN BULKLEY then read a paper on

UNUSUAL METHODS OF ACQUIRING SYPHILIS, WITH REPORTS OF CASES

(which will appear in full at an early date in THE MEDICAL NEWS).

SAMUEL T. HUBBARD asked whether, in Dr. Bulkley's opinion, syphilis could be conveyed to a sucking infant through the milk of the nurse when the latter, so far as could be made out, was entirely free from any lesion of the disease. A case which he believed to be of this kind, in which there was apparently no other source of infection, had occurred under his observation.

DR. BULKLEY replied that two observers had made experiments with the injection of milk from syphilitic women, and while one claimed that syphilitic infection was thus conveyed, the other met with negative results. At the present day most writers are inclined to deny that the disease could be transmitted by milk alone, and hold that when this was apparently the case, the infection was really carried by some secretion associated with it.

THE PRESIDENT, DR. H. JACOBI, said that there was one circumstance which might explain how, under certain conditions, the milk might be the means of transmitting syphilis. There was some milk which might be capable of doing so, and some which was not. In the perfectly healthy woman milk was a true secretion, made in the mammæ, and not a transfusion from the blood. There were, however, a number of conditions in which the milk was in a large measure simply a transudation. In anæmic or convalescent women, or in those reduced in strength by prolonged nursing, the milk changed its character, and the mamma became for the most part a filter, through which was transmitted the serum of the blood and whatever might be floating in the blood. Thus, when the nursing woman was healthy, medicines would not be transferred through the milk to the child, while if her system became reduced from any cause, lead, iron, iodide of potassium, and other drugs would be thus conveyed. From these facts, therefore, he could not doubt that under similar circumstances it was possible that syphilis could be transmitted by means of the milk.

SECTION ON THEORY AND PRACTICE OF MEDICINE,

R. C. M. PAGE, M.D., CHAIRMAN.

Stated Meeting, January 15, 1889.

ELECTION OF OFFICERS.

DR. R. C. M. PAGE was elected *Chairman*, and DR. G. R. ELLIOTT, *Secretary*, for the ensuing year.

DR. SCHUMAN LE CLERCQ, of Carlsbad, Austria, read a paper on

THE INFLUENCE OF CARLSBAD WATER ON URIC ACID EXCRETION.

The beneficial effects of the "Carlsbad cure" in gout, he said, had been recognized by the profession for centuries past, but the theoretical grounds upon which an indication for this treatment might be based had been as vague as the theory of gout itself. Prof. Seegen was the first to establish a positive theory to explain the action of the water. From his investigations he concluded that it caused a diminished nitrogenous metamorphosis and a decrease amounting to practical disappearance of uric acid; and it was generally believed that the effect of the Carlsbad water in gout depended upon its power to counteract the increased conversion of nitrogen inherited or acquired by high living; this being the conception of the pathogenesis of gout which prevailed at that time. Prof. Voit, detecting the sources of error which led Seegen to his incorrect conclusions, definitely refuted the theory of a lessened organic metamorphosis from the use of Carlsbad water, and the extensive discussion which then arose ought, he thought, to be considered as having settled this question; so that a recent attempt to revise it was undoubtedly a mistake.

As to the second point, the gradually diminished elimination of uric acid, Dr. Le Clercq said that he had been unable to find any account of further investigation, and Seegen's opinion continued to be accepted in the treatises on bacteriology and gout. At the suggestion of Dr. Hermann, of Carlsbad, he made a series of careful experiments upon his own person with the view of ascertaining whether the diminution of uric acid excretion under the influence of Carlsbad water, as claimed by Seegen, could be proved by our recent exact methods of quantitative analogies for uric acid. He made use of a method recently advocated by Prof. Haycraft, of Aberdeen, slightly modified by Dr. Hermann, and combated by him with Ludwig's method, and the analyses were made at Prof. Huppert's laboratory at the University of Prague. Haycraft's method was essentially as follows: By adding to the urine bicarbonate of soda and a solution of silver nitrate, previously rendered ammoniacal, a white gelatinous precipitate of urate of silver (and of phosphates) is obtained, which will not be reduced before it can be collected and washed on a felt-like filter compound of asbestos and broken glass. The ready solubility in nitric acid of this urate-precipitate is used for estimating the silver by Volhard's method, and we then calculate the uric acid by its combination with silver.

The experiments were continued from September 19 to October 20. Having analyzed his daily amount of uric acid for five days, while placed upon a regulated diet and mode of life corresponding to that of Carlsbad patients, he took Carlsbad water every day in gradually increasing quantities, and determined the amount of uric acid excreted during each twenty-four hours. One hundred grammes of urine were used for two parallel tests. A table containing the results of his investigations showed that the daily amount of uric acid was, upon the whole, unaltered by the use of Carlsbad water. The quantity remained between 80 and 108 centigrammes a day, and the total amount executed in a period of five consecutive days varied only between 4.023 and 4.890 grammes. During the time that the experiments were carried on, he lost 2950 grammes in weight.

Dr. Le Clercq had arranged in a table a *résumé* of the results of the experimental researches of different authors with regard to the influence of various agents on the excretion of uric acid. In connection with it he called attention to the great difference of opinion existing on every point, which showed that as yet no definite conclusions could be reached on this subject. Many of the analyses were made with inaccurate chemical methods, and all the tests were not made with the urine of twenty-four hours; while the series of experiments, with a few exceptions, were not long enough to yield results that could be compared. The increase or decrease of uric

acid was not necessarily due to any extraneous factor, as claimed, since similar fluctuations were also observed under normal conditions. The latter fact was illustrated in the experiments on himself. Although he was most careful in regard to every detail, he could not at times avoid considerable variations in the uric acid excretion any more than other observers; although he admitted that some of them were more fortunate than himself in this regard. This variation in the amount of uric acid was all the more striking in his own case, since by his strict adherence to a uniform diet and mode of life, every possible source of variation, in so far as the excretion of uric acid was concerned, was thoroughly excluded, and certainly, if any effects of the Carlsbad were demonstrable, every opportunity was afforded for their exhibition. It was to be remembered, however, that, according to Newbauer, the amount of uric acid, unlike urea, depended less on the food eaten than on special internal conditions of the organism, and that it varied greatly even in the normal state. Lehmann's tests on his own person also pointed to the fact that the nature of the food influences the excretion of uric acid much less than that of urea.

Since, therefore, no external causes could influence the daily variations in his uric acid excretion, he could only ascribe them to internal causes, such as a regulating nervous influence. In fact, there were authors who attributed the final regulation of uric acid production and excretion to the nervous system. According to Latham, gout was caused by a disturbance of the vasomotor centre, which influences the processes of organic metamorphosis, particularly in the nervous system. The atypical formation of uric acid in the muscles in gout, as accepted by Ebstein, could be considered from the same standpoint. While Garrod's thread experiment favored an idea of an excess of uric acid in the blood of the subject of gout, and though he himself afforded the experimental proof that uric acid is the "materia peccans," Eberstein did not consider it necessary to accept a general accumulation of uric acid, at least for the primary form of articular gout, because a localized retention of uric acid or a formation of uric acid in a *wrong place* (independent of increased production), could satisfactorily explain the development of gouty symptoms. Moreover, though it was universally agreed that in leucæmia there are increased formation and excretion of uric acid, this disease was never combined with gout, for which we must assume a disposition for a weaker resistance of certain organs against uric acid, either inherited or acquired. All this, he said, fully proved that the indication afforded by the secretion of uric acid cannot always be taken as an index of the quantity formed in the system (Garrod), and that the beneficial influences of a remedy in the uric acid diathesis cannot possibly be proved by analysis of the urine.

Although his experiments were made on a healthy individual, the same conditions as noted above would undoubtedly prevail in gouty patients. If, however, experiments were made on the latter under the same conditions, the question would inevitably present still greater difficulties, as the particular plan of the disease present in any case would add still greater complications to the results. For these reasons he was inclined to believe that in the future the influence of a medicinal agent on the increase or decrease of the uric acid excretion would not be conclusive as regards its indication or contra-indication in gout.

From a general review of the results obtained in his experiments he felt compelled to say that a decrease of uric acid excretion under the influence of the Carlsbad mineral waters, as accepted by Seegen, does not appear if the lists are controlled by the recent analytical methods, which secure a much more accurate result than the method of weighing uric acid after precipitation by hydrochloric acid, as employed by Seegen. Thus, the results of the experimental investigations on which it had been customary to explain the remarkable action of Carlsbad water in the treatment of gout proved untenable on repetition of the experiments when controlled by modern methods. This was now, perhaps, of less importance, however, as the ideas which formerly prevailed concerning the nature of gout were also undergoing a complete revolution, and one which would yet require much work before everything was made clear. At all events, the experiments which up to the present time so satisfactorily proved the therapeutical action of the water must now be considered insufficient.

Referring to those general physiological and pathological principles which might enable us to understand more readily the facts of practical experience, Dr. Le Clercq said that he noticed first in gouty patients under the Carlsbad treatment an amelioration of those symptoms which were explained as being occasioned by the presence of the "materia peccans," whether excessive or not, in the blood or organs. It was often seen, for instance, that albuminuria, inflammations—renal, pelvic—migraine, and nervous troubles, such as hypochondria, melancholia, and hysteria, became improved or disappeared. According to the accepted view, he explained these complications as being due to excessive quantities of uric acid dissolved in the blood; and hence he believed that by the imbibing of the warm alkaline water, which becomes so rapidly diffused in the blood, the conditions for a prompt discharge were rendered more favorable, and the diluted urine, which soon became alkaline, in a short time removed the surplus of uric acid circulating in the blood.

But he also saw, in the second place, that the gouty attacks, formerly frequent, were kept off for some time, or became less intense, or, perhaps, ceased altogether, after a course with the water. With regard to this therapeutical effect, he could not be satisfied with the former explanation of a "washing out," but had to acknowledge that the cause of the disease, the diathesis, seemed mitigated. While not attempting at present to explain this fact, he could only say that since Minkowski's researches the liver was known to have a third function besides gall secretion and glycogen-formation, viz., the sympathetic formation of uric acid. We know that sulphate of soda, so plentiful in Carlsbad water, considerably stimulated the gall-secretion, and it seemed probable that the salt also affected the uric acid formation. But, aside from the question of an excess of uric acid in gout, whether localized or general, he had in this disease an anomaly in organic metamorphosis which was undoubtedly a complicated process. Such anomalies had derived benefit from the Carlsbad treatment, and he was inclined to ascribe this to the great improvement in the general condition caused by the latter. As the food was so important a factor in the group of disorders embracing diabetes, adiposity, gout,

oxaluria, pyrocatechinuria, and cystinuria, we might justly ask whether a faulty digestion in the stomach cannot promote the gouty process under certain unknown conditions by the absorption of abnormal products of the food. Wine, for instance, had no influence on the increase or decrease of uric acid formation; yet many close observers attributed in certain cases a sudden attack of gout (and with apparent justice) to a single imprudent use of wine. This, he thought, could only be explained by the well-established fact that alcohol has a direct protracting, and thus pathological influence upon the digestion of the stomach. In the same way he could explain by its direct typical action in the stomach and liver the recognized beneficial effect of Carlsbad water in many phases and forms of gout. According to Garrod, the mineral waters were indicated in gout for the reason that the diathesis leading to its production was often closely connected with deranged hepatic formation, and Ebstein and others recommended them particularly in those forms of gout complicated with plethora or gastric symptoms.

The compound action of Carlsbad water, Dr. Le Clercq said, arose, in the first place, from the influence of the warm water itself, which, when absorbed in large quantities, as Garrod had remarked, powerfully stimulated the processes of the animal economy. and increased the various secretions. Secondly, from the salts contained in it. Sulphate of soda produced increased peristalsis and excretion of water, urine, and urea. The cathartic action cut short, so to speak, complete digestion and absorption of the ingesta, and excretory matters, which would otherwise be retained, were quickly eliminated. Chloride of sodium greatly excited the stomach's functions, and induced increase of urine and nitrogenous excretion, while carbonate of soda improved the digestive power of the stomach, and increased peristalsis and the natural alkalinity of the blood. If now, by virtue of the properties of the constituents of the water, there was an increase of peristalsis and diuresis, and an increased flow of liquids in the tissues, while, with less food, plenty of outdoor exercise and baths were taken, fewer products of retrograde metamorphosis would circulate in the blood and organs; and those which did circulate would be more easily eliminated. Finally, not only were the secretions increased by Carlsbad water, but also the pressure under which they were secreted; this effect being due to taking the water in sips. The latter was probably the result of nervous influence, for Kronecker had shown that a liquid taken in many small sips would, for the time, completely abolish the inhibitory action of the vagus of the heart. This consideration would assist in explaining how certain predispositions of tissues, like cartilage, to receive injuries in gout might be effectually combated by means of Carlsbad water. The increased pressure referred to would be beneficial by increasing the *vis à tergo* in such organs as had a torpid tissue change, owing to the absence or scanty supply of bloodvessels. The nutrititve liquid being now more easily renewed, the conditions were not favorable for a deposit of urates.

The Carlsbad cure, which combined other factors, such as bathing, diet, and exercise, in addition to the water, had been thoroughly studied in a paper read by the Chairman, Dr. Page, before this body, and he said that he would refer his hearers to that for details. The hot baths, in particular, were useful by increasing the activity of the circulation and respiration, and increased consumption of oxygen and exhalation of carbonic acid would cause conversion of fat (so of the superabundant in gout), and decomposition of the constituents of the body containing nitrogen, with corresponding increase of urea in the urine.

As contraindicating the Carlsbad treatment in gout Dr. Le Clercq mentioned those advanced stages of the disease with serious structural implication of the kidneys, or in which cachexia has resulted (aside from such other general pathological conditions as contraindicate the treatment, like cardiac diseases, pronounced anæmia, carcinoma, and phthisis). If, as Garrod claimed, the causes exciting an attack of gout, were those which induce a less alkaline condition of the blood, or which temporarily check the eliminating power of the kidneys, the properties of the alkaline and diuretic Carlsbad water fully established its prophylactic value.

DR. FESSENDEN N. OTIS said he had listened with great pleasure and interest to the scientific exposition of the character of the Carlsbad water as set forth in the paper by Dr. Le Clercq, and that he had rose more particularly to say something of his own impressions concerning its therapeutic value as received from a course of treatment in his own person at Carlsbad during the past summer, from his observations of the effects of the water on the different classes of cases which he had seen there, and from the results obtained from it in various patients which he had sent to Carlsbad in previous years.

He had been in the habit of assuming for a long time past from what he had noticed of the Carlsbad cure that patients suffering from troubles due to functional obstruction of the liver and those with uncomfortable accumulations of adipose tissue were most likely to be benefited by it; and his experience with regard to it in those conditions had been exceedingly gratifying. In those suffering from biliary calculus the action of the water was very prompt and efficient, and, as far as he had been able to observe, its use was attended with permanent benefit. Cases under his care, in which all the ordinary methods of treatment failed, had, after a course at Carlsbad, been entirely relieved. It was usually advisable, however, for such patients to spend two or three consecutive seasons there. In two or three such cases that he recalled there had been no return of the attacks after the lapse of four or five years.

Dr. Otis described, with considerable detail, the case of a gentleman sixty-five years of age, suffering from aggravated liver trouble, the result of high living, whose condition, notwithstanding the fact that for two years he had been most abstemious in his habits, and in spite of all treatment gradually became worse and worse, until he was taken, in a very weak state, to Carlsbad, when he immediately began to improve. At the present time, at the age of sixty-nine or seventy, he is apparently one of the healthiest men in the city of New York; and so decided were the effects of the Carlsbad treatment that since taking it he had been able to resume habits of life that were simply astonishing in a person of his age. The same results, he said, had been seen in repeated instances under his observation.

That which decided him to try the Carlsbad treatment in his own person was the existence of gout and what he supposed to be gouty dyspepsia, which was attended with more or less mental hebetude and an inability to attend properly to his usual professional work. While

at Carlsbad he daily took, at short intervals in the morning, five seven-ounce glasses of the water, at a temperature not exceeding 80° Fahrenheit, drinking it in sips. The regimen to which he was subjected involved the avoidance of starchy food, but allowed a sufficient amount of nourishing diet; and he took two glasses of claret a day. Although taking only a very moderate amount of exercise, he lost one pound a day for thirty days, and among the results produced by the treatment was a considerable loss of strength. He experienced more or less debility for a month after leaving Carlsbad, spent principally in Switzerland; but he gradually improved in flesh and strength, and at the present time he enjoyed an amount of freedom from dyspeptic trouble which he had not had for a number of years. His own experience was also that of a good many other individuals with whose cases he was well acquainted.

Aside from the diet and the regular habits imposed upon those taking the treatment at Carlsbad, he believed, therefore, that there was something in the water which tended to the elimination of effete material from the system. This is what is needed in the class of cases under consideration, and, in general, he had found that those remedies which produced this result were the most valuable. Thus, mercurials were of very great service, and patients with the uric acid diathesis were immediately benefited by their regular administration. In such cases from one to three grains of calomel a day could be taken for a considerable time with great advantage, and without producing any deleterious results.

THE CHAIRMAN said that individuals who had too much fat, and those who had an excess of uric acid, would derive the greatest possible benefit from the course at Carlsbad; but for those suffering from Bright's disease or pulmonary trouble, or from any grave depression of vitality, it was only attended with evil. He had, however, expressed his views on this subject very fully in a paper published in the *Medical Record*, in October, 1886, and would not go into any details on the present occasion.

SECTION ON ORTHOPŒDIC SURGERY.

LEWIS A. SAYRE, M.D., CHAIRMAN.

Stated Meeting, January 18, 1889.

DR. H. B. JUDSON read a paper on

THE QUESTION OF INTERFERENCE WITH THE ABSCESSES OF HIP DISEASE.

He exhibited two cases of hip disease in which abscesses had been absorbed with most favorable results, locally and generally, and thus introduced a defence of the expectant plan of managing such abscesses which, he said, he had followed for many years. He believed that if mechanical and hygienic attention is duly paid to the affection of the bone and joint, the abscesses, if they occur, will be best managed, as a general rule, by allowing them to become absorbed, or to open spontaneously. Their presence does not add to the gravity of the deep-seated bone disease, or interfere with the natural repair and cicatrization of the osseous tissue involved. Many such abscesses are cold and painless, and attain a large size. Their rupture is also painless, and is followed by an unimportant scar. In two of his cases the rupture occurred during sleep, and the patients supposed they had wet the bed.

Many cases, however, are phlegmonous, and attended with pain and general wasting. He would here advise (1) absolute rest to the joint, (2) the most generous and varied diet, and (3) the use of opium in potent doses, if required. He believed that incision is a tardy and fruitless procedure, because the most painful stage is present when the pus is in the cells below the periosteum. It substitutes artificial for natural closure, and, even with the best antisepsis, is useless in many cases unless followed by scraping of the purulent depôt, excavation of the focus, or excision. It is difficult for the general surgeon, or the beginner in orthopœdic practice, to refrain from operating in such cases, but it takes but little knowledge of the way in which the abscesses of hip disease are treated at the present time, to see that the general surgeon, whose reliance is chiefly on operative procedures, resorts to the knife with the hope of promoting a rapid recovery; while the orthopœdic surgeon, who relies chiefly on mechanical means, seeing that the case, no matter how treated, will be tedious, devotes himself to the proper management of the bone disease, and thinks but lightly of the incidental abscesses.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 11, 1889.

THE PRESIDENT, WM. GARDNER, M.D., IN THE CHAIR.

DR. WM. GARDNER exhibited a specimen of

PAPILLOMA OF THE OVARY.

The patient was aged sixty and married, never pregnant, had suffered for many years from prolapsus uteri, but otherwise had been healthy until a year ago, when she first noticed a lump in the abdomen. This slowly increased and became so painful that for several months she had taken morphia regularly. From being a very stout individual she had become very thin. When the patient came for operation, she was found to have a very severe cough with effusion in the right pleura. This, however, soon disappeared and operation was performed for the removal of the tumor. On opening the abdomen no adhesions were found, but there was a considerable quantity of straw-colored peritoneal fluid. The pedicle was most favorable. The growth was confined to the ovary; the whole growth, with the exception of one small cyst, was solid and had a sarcomatous appearance. It was about the size of a child's head. The case made a rapid recovery. The peritoneum was drained with a glass tube for several days. The tumor was examined by Dr. Lafleur and found to be papillomatous.

DR. GARDNER also reported a case of

DOUBLE TUBERCULAR PYOSALPINX.

The patient was aged twenty-nine years, had been married five years, and had been pregnant twice, but had only gone to full term with her last child, which had to be delivered with forceps; since then she "has not seen a well day." Has had repeated attacks of inflammation, confining her to bed six and eight weeks at a time. There was constant pelvic pain, profuse hemorrhages, and very painful menstruation. Notwithstanding this she was very fat, though flabby and anæmic. The tubes which had been removed were shown; both

were dilated to the size of sausages and filled with pus, the inner surface showing numerous miliary tubercles. There was no evidence of tubercle elsewhere. The patient made a somewhat tedious recovery.

Dr. Gardner remarked that at a meeting of the British Gynecological Society, on the 13th of June last, Mr. Lawson Tait had exhibited tubercular pus-filled tubes from a patient who also had an extra-peritoneal cyst. This patient and another affected similarly, recovered.

DR. ALLOWAY said he was much interested in Dr. Gardner's specimen of tubercular tubes, especially as he had been present at the operation. When the tubes were first seen, it seemed as if the disease was confined to the abdominal end. The tubes were hard, thickened, and apparently only fluctuated toward their abdominal extremities. The isthmus was healthy in appearance and when cut across did not exude pus. From this it would appear that the disease originally began in the tubes and was not an extension from the uterus. In pyosalpinx the origin could be traced either to a past attack of septic endometritis following delivery at term, to an abortion, or to leucorrhœa. In the case under discussion it was perfectly clear the disease did not spread from the uterus but must have originated in the tubes themselves. Dr. Alloway also stated that it was very rare to find tubercle in the tubes of women who had been marrried for some years and who had borne children; the disease was usually found in young virgins who were of a tubercular diathesis and who probably in time would have developed similar disease in the lungs or elsewhere. He did not think tubercular pyosalpinx influenced the nutrition of the patient.

Dr. Mills said that pigeons after the breeding period and during moulting frequently died of tubercular disease of the oviducts, the disease being very apt to attack weakened organs. The tubercle was usually caseating and there was no tubercle elsewhere.

DR. BELL said it was not the usual experience for the patient to increase in weight when suffering from tuberculous disease. He doubted the tuberculous nature of the case.

DR. LAFLEUR said that when tubercle was localized in the lungs, or other vital organs, it interfered with important processes, such as oxygenation of the blood, etc., hence the wasting; but when a remote organ like the ovary was attacked, nutrition would not necessarily be interfered with.

DR. RODDICK remembered many cases of tuberculous testicle in apparently healthy people, and in them the disease had had no perceptible influence on nutrition.

DR. GARDNER then exhibited the specimens from a case of

HYDROSALPINX OF RIGHT SIDE, WITH SMALL CIRRHOTIC OVARIES.

The patient, a poor woman, aged thirty-nine years had spent the last two years between the hospital and a home for friendless women, suffering almost constantly from pain in the right iliac region and right side of the trunk, generally with great distress in the epigastric region. Her appetite was small, and vomiting was frequent. As the uterus was retroverted it was sutured through each broad ligament to the anterior abdominal wall. The operation for removal of the appendages presented no difficulties. The patient made a good recovery.

DR. LAFLEUR exhibited for Dr. Ross an

ANEURISM OF THE ASCENDING AORTIC ARCH.

The aneurismal dilatation involved the aorta from the semilunar valve to the middle of the transverse arch. There was no distinct sac, the whole of the vessel between these two points being uniformly dilated. No adherent laminated clot was found within, but merely a small post-mortem fibrinous clot. The inner surface of the wall of the aneurism was roughened by numerous glistening firm raised grayish-yellow atheromatous patches. There was very slight inflammatory thickening of the aorta. There was slight incompetence of the aortic valve due to dilatation of the orifice. The aneurism did not reach the thoracic wall, being prevented from doing so by an adhesion of the whole anterior border of the right lung to the parietal pleura. This circumstance would account for the absence of absolute physical signs in that situation. From the main dilatation of the aorta there was a small secondary sacculated aneurismal dilatation, situated immediately in front of the trachea immediately above its bifurcation. This sac measured one and a half inches, and could be seen on the tracheal surface as a convex ovoid projection, which, in the natural state, must have caused nearly complete occlusion of the orifice of the left bronchus. Over this prominence the mucous membrane was inflamed, and through it could be felt the eroded cartilage rings of the trachea, the tracheal cord being almost perforated. The immediate cause of death was a double broncho-pneumonia involving the lower lobes of both lungs.

DR. RODDICK presented a stone removed by the

SUPRAPUBIC OPERATION.

The patient was a man, aged seventy-six years, who had suffered from symptoms of stone for nine years, and who had, on several occasions, passed calculi; latterly he suffered great pain, and insisted on operation, although in a very feeble condition. On the first introduction of the sound the stone was discovered, and as it was made out to be of large size, the suprapubic operation was chosen. The operation was performed, and the stone, which weighed four ounces, easily extracted; the bladder was not sutured, but a drainage tube was inserted, and the bladder was also drained by a catheter introduced through the penis. The patient died of exhaustion on the fourth day. There was no fever, and the wound was always healthy looking.

CORRESPONDENCE.

THE ORIGIN OF THE FLORIDA YELLOW FEVER EPIDEMIC.

To the Editor of THE MEDICAL NEWS,

SIR: An article in THE MEDICAL NEWS of the 5th instant, relating to the origin of the yellow fever epidemic in Florida has been brought to my attention. The statement that the man Turk was an Italian I long ago corrected, but my impression still is that he brought the fever to Tampa. The evidence is now in the hands of the Senate Committee, and will doubtless be printed in due course. My statements being based on information and not on actual observation are, of course, liable to correction when proof is furnished to the contrary, but it

will take something more than an affidavit to convince me that Turk did not visit Key West during the epidemic. A singular corroboration of the original statement is found in the affidavit that he is alleged to have accompanied Pepe in the "hunting expedition." Was this "hunt" in the direction of Punta Gorda Bay? If so, that is all that was claimed. However, my authority for the statement was long ago sent to the Senate, where it now remains. I am very truly yours,

JOHN B. HAMILTON.

CHICAGO, January 21, 1889.

NEW INVENTIONS.

A NEW INSTRUMENT FOR THE EXTRACTION OF A DISLOCATED LENS.

BY H. F. HANSELL, M.D.,
OF PHILADELPHIA.

THIS instrument was devised for the removal of a lens which had been traumatically dislocated behind the iris, and answered the purpose so admirably that it may be worthy of being brought to the notice of the profession.

The accompanying cut represents double the size of the extractor. It is made of soft metal, has three prongs,

each of which is armed at its extremity with a fine barb; its breadth is 4 mm., length 8 mm., and each barb 1 mm. in length.

The operation necessary, briefly described, is:

1. Linear or modified linear cut, as in Graefe's extraction of cataract.

2. Iridectomy (this should be done if the lens is normal or nearly normal in size).

3. Introduction of the extractor immediately behind the lens to a point below the centre of the posterior surface.

4. Extraction.

This instrument has the following advantages:

1. It will remove a lens equally well with or without its capsule.

2. Its insertion necessitates no displacement or other disturbance of the vitreous in the removal of a lens dislocated behind the iris.

3. Both shank and fork being malleable, the instrument is available in all cases where the lens can be seen.

This instrument is made by E. A. Yarnall, 1020 Walnut Street, Philadelphia.

NEWS ITEMS.

The Royal College of Surgeons and Sir Morell Mackenzie.—At the quarterly meeting of the Council of the Royal College of Surgeons of England, held January 10th, the following resolution, offered by the senior Vice-President, was adopted by a vote of 21 to 2 against:

"The attention of the Council of the Royal College of Surgeons of England has been called to a volume published by Sir Morell Mackenzie, which bears the title, 'The Fatal Illness of Frederick the Noble,' and the Council consider it to be their duty to express their deep regret that any member of the College should have allowed himself to publish in such a manner the charges that are therein made against distinguished surgeons who were his colleagues in the case. The Council have not sufficient means of forming a conclusive judgment on the facts which are in dispute, but in their opinion no provocation, such as Sir Morell Mackenzie alleges, can justify this publication or the language employed in it."

Simple Test for the Detection of Pus in the Urine.—Drop into the specimen of urine enough tincture of guaiac to give it a milky appearance, and heat it to 100° F. If pus be present, a blue tint will develop. The urine may also be passed through a white filter, and a few minims of the tincture of guaiac then allowed to drop on it; if pus be present, a distinct blue coloration will be produced.—*Pharmaceutical Era.*

A New Method of Illuminating Internal Organs.—The well-known experiment for showing total reflection of light in a jet of water or in a glass rod has been made use of here by Dr. Roth and Professor Reuss in devising a new method of illuminating from outside some cavities of the body, such as the larynx and nose. The instrument used for this purpose is a well-polished (not blackened) glass rod, to one end of which a small electric incandescent glow lamp, like those used for electric breast pins, is attached. The light of the lamp is reflected equally through the whole glass rod to its other end, which is placed on the skin of the throat in the case of a laryngoscopical examination being required. Then the interior of the larynx becomes illuminated sufficiently for laryngoscopy. If this luminous glass rod is applied to the sclerotic, the interior of the eyeball can be examined in the same way as by using an ophthalmoscope, the structure of the posterior parts of the vitreous body being very well seen and studied. As the glass rod remains cold, it can be employed in operative surgery to light the natural and artificial cavities.—*Lancet*, January 5, 1889.

Sterilized Milk.—From a correspondence in the pages of the *St. Petersburger medicinische Wochenschrift*, we learn that the practice of sterilizing milk is extensively carried out in the Russian capital, not only in the Children's Hospital and some of the larger dairies, but in many of the private families. Though but recently suggested by the German chemist Soxhlet, whose name is familiar to all analysts through his ingenious apparatus for the extraction of fats, the process is nothing more or less than the common one of sterilizing fluids in flasks by heating them in a water bath to boiling and hermetically closing their mouths while their contents are in a state of ebullition. There has been much discussion both in the papers and in the Medical Society, as to the respective advantages of the flasks advocated by Dr. Gräbner, and the ordinary bottles which Dr. Martenson has adopted after a trial of several special forms. Bottles, he very reasonably urges, are always at hand; they are less easily upset, and less fragile than the flasks commonly used in laboratories, while flasks of thicker glass are liable to break if the heat be applied too quickly.

The best method of closing the flasks or bottles has also been a matter of debate; Dr. Westphalen, of the Children's Hospital, rejects India-rubber stoppers as unnecessary, and Dr. Martenson agrees with him; but corks

are certainly hard to maintain in an aseptic condition. We should be inclined to recommend the new patent spring stopper which has recently been largely employed by wholesale druggists as perfectly air-tight and cleanly, and at the same time, more easily removed than glass stoppers, which are apt to be firmly retained by atmospheric pressure over a partial vacuum. For the rest, a water bath, with suitable arrangements for heating and a rack or frame for keeping the bottles in position, are all that are required.

In the presence of foot-and-mouth disease, which, as Johne has shown, may be communicated as such to man, and has led, more often perhaps than is known, to epidemics, as it were, of low and even fatal pneumonia, with herpetic eczematous eruptions among infants, and indeed in all cases in which the milk in not above suspicion, simple boiling is all that is required to exclude the chance of infection; but in the closure of the bottles while boiling, the subsequent access of aërial germs is prevented, and the milk remains perfectly fresh and unaltered for two or three weeks. Such sterilized milk might be supplied by the dairy companies in pint, quart, or gallon bottles with spring stoppers for use in nurseries, and on board passenger steamships and yachts, where it would be preferred to condensed milk by most persons.—*British Medical Journal*, December 8, 1888.

Naphtha Poisoning in Rubber Factories.—In several large factories in Germany, especially in India-rubber factories and establishments for cleaning India-rubber, peculiar morbid symptoms have lately been observed. The faces of many of the girls, who had not left the factory during the day, became flushed and swollen in the evening, and they could not walk steadily. An examination of their clothes and of the work-rooms for brandy, opium, etc., yielded no result, till an accident lead to the solution of the mystery. In these factories naphtha is used in large quantities, and kept in special boilers closed against the air. The girls had succeeded in getting keys to the boiler valves, and, soon learning the intoxicating effect of naphtha, were in the habit of slinking unobserved to the reservoirs to inhale the poison, which threw them into a state of happy forgetfulness and conjured up a thousand sweet dreams of wealth, splendor, happiness, etc. The secret was revealed by a novice, who made too deep an inhalation and fell into hysterical convulsions.—*Lancet*, January 5, 1889.

The Disinfection of Instruments.—DR. DAVIDSOHN (*Berl. klin. Wochenschr.*, 1888, No. 35), after numerous experiments made at Berlin's Hygienic Institute, comes to the conclusion that instruments are best disinfected by immersing them in water at 212°, and allowing them to boil therein for five minutes. All pathological micro-organisms are thereby destroyed, without any injury being done to the instruments.—*Therapeutische Monatshefte*, Jan. 1889.

Who Owns the Dead Body?—The Medical Society of London discussed this question incidentally at a recent meeting, upon the point whether it was legally possible for a dying person to direct the disposition of his body so as to bind his executors or other representatives. The law at present seems to be admitted to be that no such directions given by will are legally binding, and that, even if the testator leaves money for the special purpose of carrying out his directions, the executors are not bound to apply it in the way directed.—*Medical Press*, December 19, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 15 TO JANUARY 28, 1889.

LORING, L. Y., *Major and Surgeon*—Is granted leave of absence for one month, on surgeon's certificate of disability—Par. 1, *S. O. 6, Headquarters Department of Arizona, Los Angeles, California*, January 18, 1889.

PRICE, CURTIS E., *Captain and Assistant Surgeon.*—Leave of absence granted in S. O. 257, A. G. O., November 3, 1888, is extended two months.—Par. 1, *S. O. 21, A. G O.*, January 25, 1889.

By direction of the President, and in accordance with Section 1246, Revised Statutes, an Army Retiring Board is appointed to meet in this city, at 11 o'clock A.M., Thursday, the 17th day of January, 1889, for the examination of such officers as may be ordered before it. Detail for the Board: JEDEDIAH H. BAXTER, *Colonel and Chief Medical Purveyor*, and CHARLES R. GREENLEAF, *Major and Surgeon* (U. S. Army).—Par. 2, *S. O. 12, A. G. O., Washington*, January 15, 1889

ALDEN, CHARLES H., *Lieutenant-Colonel and Surgeon*—Detailed for duty on Army Retiring Board, to meet at St. Paul, Minn., at the call of the president thereof.—Par. 7, *S. O. 16, A. G. O., Washington*, January 12, 1889.

EDGAR A. MEARNS, *Captain and Assistant Surgeon* (U. S. Army)—Detailed for duty on Army Retiring Board, to meet at St. Paul, Minn., at the call of the president thereof.—Par. 7, *S. O. 10, A. G. O., Washington*, January 12, 1889.

By direction of the Secretary of War, BENJAMIN MUNDAY, *Captain and Assistant Surgeon*, is relieved from duty at Fort Sisseton, Dakota, and will report in person to the commanding officer Fort Sully, Dakota, for duty at that post.—Par. 2, *S. O. 11, A. G. O., Washington*, January 14, 1889.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FIVE WEEKS ENDING JANUARY 26, 1889.

CARTER, H. R, *Passed Assistant Surgeon.*—Leave of absence extended six days, December 29, 1888

WHEELER, W. A., *Passed Assistant Surgeon.*—When relieved at Buffalo, New York, to proceed to Cleveland, Ohio, and assume charge of the Service, January 3, 1889.

URQUHART, F. M., *Passed Assistant Surgeon.*—To proceed to Buffalo, New York, and assume charge of the Service, January 3, 1889. Placed on waiting orders, January 12, 1889.

CARRINGTON, P. M., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, January 22, 1889.

WILLIAMS, L. L., *Passed Assistant Surgeon.*—Granted leave of absence for fifteen days, December 26, 1888.

PETTUS, W. J., *Assistant Surgeon.*—Ordered to examination for promotion, January 15, 1889.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Louisville, Kentucky, for temporary duty, January 22, 1889.

KINYOUN, J. J., *Assistant Surgeon.*—To proceed to Baltimore, Maryland, for temporary duty, December 29, 1888.

CONDICT, A. W. *Assistant Surgeon.*—Granted leave of absence for thirty days, January 25, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL LECTURES.

THE PRESENT NEEDS OF SCIENTIFIC MEDICINE IN NEW YORK CITY.

The Inaugural Address of the President of the New York Academy of Medicine, delivered February 7, 1889.

BY ALFRED L. LOOMIS, M.D., LL.D.

FELLOWS OF THE ACADEMY: As I review the good work that has been done in the Academy during the past four years, under the guiding hand of Dr. Jacobi, I am impressed with the fact that he has inspired all its departments of scientific work with his own indomitable energy and broad culture. He has laid the foundations of a far more comprehensive structure than existed before. He has striven to make this Academy the centre of scientific medicine in this city—I might say, in this country. His labors have been unremitting, disinterested, and self-sacrificing, and he leaves the presidential chair with the highest esteem and gratitude of all its Fellows. How successfully the work which he has so ably begun was continued, must be told by those who years hence shall write our history. It is our hope and purpose that the "well done," with which history has already sealed the record of the past, may not be denied to the future.

I desire this evening to speak to you of "The Present Needs of Scientific Medicine in this City," and through you to the noble and broad-minded men and women whose hands and hearts are in every enterprise that tends to make our city the centre of material power, art, science, literature, and human charity.

It were perhaps more fitting on such an occasion as this, to indulge in mutual congratulations, rather than in criticisms; to recall battles won, storms that are past, and to speak of the brightening skies that overarch our present successes, but to those who battle for science the time for congratulations comes only when there are no new problems to be solved, no more wrongs to be righted, no faults that may be corrected, no needs that may be supplied, no new fields that may be explored, where faithful workers may perform greater achievements than have been reached in the past—surely no one who reads with intelligent insight the lessons of the past quarter of a century, and who realizes the necessities of scientific workers in every department of human knowledge, can fail to be impressed with the conviction that a higher and broader culture is needed in those who are entering these fields of labor, and in no one is this more apparent than in that of medicine. That there have been great advances in this respect during the past twenty years, few will question, but that the standard is still far below what it should be, is equally apparent.

The remedy for this is somewhat difficult to reach; certainly the entrance examinations to our colleges which have been proposed do not solve the problem. It seems almost ridiculous that a few questions in mathematics, the elements of physics, and the rudiments of language, less difficult and less comprehensive even than those required for entrance into our academic colleges, can be a satisfactory criterion of a candidate's fitness to commence the study of medicine. It is to be remembered "that a quarter of a century has wholly changed the relations of human knowledge," and that the natural sciences have become the chief factors in our modern civilization. Medicine, which once relied upon authority and tradition, is now rapidly seeking for its basis the natural sciences; medical students, of all others, should have a special education in these sciences; so long as a special training is not required as the important part of the preparation for entering upon the study of medicine, so long will the instruction in our medical colleges be incomplete and unsatisfactory. Defects in early training cannot be made good by excellence of professional teaching; mental equipoise, keenness of perception, analytical acumen, and intellectual power of differentiation between fact and fancy cannot be developed after the mind has become dwarfed during its years of plastic growth. To make cultured physicians, our colleges must be furnished with cultured men.

The remedy then lies more in the hands of the profession than in the colleges; when the profession shall realize their responsibility in this matter, and shall refuse to send to medical colleges, or advise to enter upon the study of medicine men devoid of natural talents, mental discipline, and intellectual power, then will the colleges be furnished with material capable of receiving the instruction which they have to give. In England, and on the continent, the higher general culture of the profession has so influenced the mass of medical men, that no uneducated man thinks of entering upon the study of medicine.

This is the first demand which medical science makes of us, that our "*esprit du corps*" be more sensitive, that our sense of personal responsibility be more keen, and with a courage born of conviction, and strengthened by the nobility of our calling, we hesitate not to say when occasion permits, "You are not fitted to be a physician, choose some other path of life." When we stand ready as a body to take this position, then, and not till then, will it be possible for our colleges to do that high grade of scientific work which is justly demanded of them. For, while we are justly proud, and have ample reason to congratulate ourselves on the many advancements that have been made both in graduate and post-graduate instruction in our city during the past twenty years, and while we are fully abreast, if not in advance, of our sister cities in this matter, we are still far from meeting the demand of scientific medicine; to answer fully its demands, the teaching bodies in our colleges must be placed on a higher plane, they must be separated from the financial interests of the colleges, vacancies in the

corps of instructors must be filled by fair competition, thus stimulating the younger members of the profession, who desire to make teaching their lifework, to prepare themselves by study and training to fill vacancies in our faculties as they shall occur. The curricula of our colleges must be so extended and subdivided that not only will a larger number of instructors be needed, and longer sessions required, but what is of far greater importance, that those who teach may by personal and familiar contact gain such intimate knowledge of each student, and firm control of his mental processes as will enable them to become teachers in the good old Anglo-Saxon sense—to be educators and not simply instructors pouring out their daily dole of wisdom into unreceptive ears.

All the facilities for laboratory work, original research, pathological study, clinical observation, and bedside instruction must be systematized, and largely increased. In fact, our medical colleges must be turned into workshops of scientific medicine, with skilled master workmen in every department, to guide, to lead, and, if necessary, to goad the young apprentice through his daily round of labor, until perfected, he shall go forth fully prepared to take an honorable place among the masters of the land. Not only should our colleges be thoroughly equipped with teachers and appliances for the training of undergraduate pupils, but they should be prepared to give well-trained men, after they have completed their graduate course facilities for study and experimentation in new fields of investigation.

Our laboratories should be so endowed that scholars of rare ability who are every year coming to our city for more knowledge may not only have places to work in, but means to work with.

Why is it then that in New York City, the centre of all honorable activity, where wealth groans for an outlet, any institution of human learning should be unable to do good work for the lack of money to do better. Why is it that men of wealth do not realize their great opportunities for wise liberality in this direction, liberalities which will not only shed lustre upon themselves and our city, but will mitigate human misery as certainly, and in many ways far more effectually than our hospitals and charities for the sick and suffering poor? My answer to these questions is, that the medical profession has not, as it should, directed the stream of accumulated wealth into this channel. The only appeal, until quite recently, has been for means to establish hospitals and charitable institutions, that to-day hospitals and dispensaries so far exceed the needs of the city that there is actually a premium on patients to fill their wards. Does any one doubt that if the profession would unitedly urge the great and pressing needs of our educational institutions upon generous minded men and women, they would respond as liberally as they have done for the erection and endowment of hospitals and dispensaries. If educated men and women by their words and writings would create a public opinion that a higher education in every department of human knowledge is the only lasting glory of a great city, that mental development is more to be desired than material prosperity, and that next to religion, education is the great corner-stone of our civilization, then would science break the bonds which now bind her, and be able to offer to knowledge-seekers who come to us from every portion of the civilized world, equal facilities for growth and development as are at present furnished by the centres of learning in the old world.

History tells us that the greatest glory of ancient cities, long since buried in ruins, was their universities and lyceums founded, reared, and fostered by the patronage and intelligent generosity of wealth and power. It is hardly possible to believe that this great city will much longer remain uncaring and unconscious of her greatest glory. The noble gifts which have been made during the past few years to educational institutions, and especially to medical colleges, inspire the hope that the stream of emotional benevolence for the sick and suffering is being turned into intellectual channels for higher educational needs and may we not believe that in the near future this city shall produce a class of medical men of broader culture who shall enter on their lifework from a higher plane, carrying with them to the couch of suffering better skill, greater devotion, and a more comprehensive realization of the nobility of the work to which they have given themselves?

In this connection there is need of establishment of scholarships, fellowships, and independent lectureships, which shall enable scholars of limited means to engage in scientific work. It is a part of history that as a rule the most faithful and efficient scientific medical work in this city has been done by men who, in their earlier professional life, had only such opportunities as they made for themselves, who were hampered, often almost to the verge of despair by their lack of means. While appreciating most fully the value of adversity in developing character, I believe it may be carried too far and that many stewards of idle millions will one day give an account for their failure to supply abundant means whereby brilliant men may be enabled to develop their full powers for the benefit of science and the common good.

There should also be created a public medical opinion which shall cause scientific attainments to become so much more honorable than mere professional success, which so often depends on social rather than mental powers, as to induce young men of wealth and intelligence to devote their lives to study and research. Such work might well be done in connection with our colleges or under the auspices of our medical societies. If there were twenty such places of work to-day, I am confident they would be quickly filled by enthusiastic and intelligent workers; and who can estimate the amount of good that would be done each year, and the great influence it would have in unveiling the obscurities which surround so many of the vital problems now pressing upon us for solution in almost every department of medicine?

Another need of scientific medicine in this city in common with that of our country—I may say the whole world—is a higher standard of medical literature. The American spirit of so-called enterprise presents no more deplorable manifestation than in the development of our medical literature. Before entering upon its criticism, however, let me say that no one appreciates more than I the value of the work of many faithful and conscientious laborers in the field—laborers whose writings are the expression of crystallized thought and experience, whose patience never fails, who know no self but only mankind, and who, with a supreme reverence for knowl-

edge and truth for its own sake, are devoting their lives to its development—it is because I recognize the power and greatness of such lives that I feel impelled to offer words of criticism on the redundancy of the medical writings of these latter days.

The *first* fault which I would name is vain repetition, "such as the heathen uses," and a lack of original thought. Our medical journals are filled with articles that show haste in their preparation and a lack of careful consideration in their statements—positive opinions are given unsustained by reliable data or extended observations, theoretical conclusions are put forth as established facts and not as questions demanding experimental answers. It were almost a work of supererogation to demonstrate to this audience that our medical journals too often publish articles that contain not the faintest trace of an idea which is not familiar to every student of medicine. So called original articles, clinical lectures, reports of special methods of treatment, all repeat the well-known facts that are found in every "Student's Compend," until we despair of finding the little gold among so much dross. To what shall we look for the cause of this?

First. A mistaken idea among the younger members of the profession. An idea for which many of us whose heads are silvering are in part to blame. The eager, ambitious young man, fresh from the hospital, filled with his own knowledge and exuberant life, imagines that the road to fame and wealth lies through the columns of the medical press, and that all who have once seen his name at the head of an article, remember it as though it were the writing upon the wall, and will immediately seek his services in consultation. Too often his ideal is given a halo by some older man who says write something for the journals, write often and let the profession know you. Let us confess this in garments of penitence, and in a more loyal spirit let us seek to inspire the younger members of the profession with higher ideals which shall foster in them the spirit of personal achievement, shall develop a pride in quality—not quantity—of mental products and that praiseworthy modesty which is content to learn until it is competent to teach.

The story or legend of that German savant who, after a life devoted to the five cases of the Greek noun, mourned upon his deathbed that he had not confined himself to the dative case alone, comes to us like a fairy tale or the record of an insane asylum. Yet let me tell you within that story, be it fact or fancy, lies the secret of noble achievement, of human progress, the essence of expanding, perfecting life of scientific work. It shows the soul capable of comprehending the infinite possibilities of science, and the self-forgetting ambition which can devote itself to the accomplishment of one thing worthily, whose sufficient reward is in the consciousness of having done faithful work.

When medical writings shall be filled with this spirit a year of the journal medical literature of the French, German, and English speaking people can no longer be condensed into five small octavo volumes.

I mention as the *second* cause of medical redundancy the speculative interests of medical publishers, financial necessities of unsuccessful physicians, and conceit of self-appointed authorities—each of these offers excuse for the establishment of a new medical journal and another waif is born to feed on patent foods and peptonic mixtures. The doors are thrown wide open and all aspiring young authors invited to enter, without cost, where fame is found at every turn.

Gentlemen, I appeal to you, are these the hands by which our noble science shall be upheld: are these the spirits to suffer and endeavor to work for a lifetime, if need be, that one new truth may be added to our store? They bring but broken stones and rotten beams which are not worthy a place in our temple of science, whose walls bear polished tablets to the memory of men who labored for truth not titles, for science not self, for mankind not money, for love not lucre.

As one enters upon an analysis of these requirements of higher medical culture and the demands of scientific medicine, he soon finds the essential element of each crystallizing into a single form about a single point, and realizes that the fundamental defect, the one first cause of the established fact that medical science has failed to keep pace with her sister sciences in this country, is a lack of high ideals among the mass of the profession—too often also among those who are justly its leaders.

As artisans we yield the palm to none—when science passes into art we seize every weapon it offers and wield them against the common adversary with such fearless force and skill as to cause even the forgers of these arms to confess our greater skill. But in the fields of pure science we still sit at the feet of the old world and in our secret heart at least confess we are as yet hardly competent to be even critics of its teachings. As a body we have yet to learn what scientific work means. That practical spirit, that Yankee ingenuity, born of adversity and developed by opposition, which has made us the foremost nation on the globe in all that tends toward material prosperity, and our growth, like the unfolding of a century plant, are the very elements that check—nay, forbid the growth of pure science. Every other science but ours tends directly toward the production of material results, toward the production of wealth. It is America that has seized Jove's thunderbolts and bounded them in the service of mankind; has made them meek and patient servants that do our bidding as does the muzzled ox, because the harnessed lightnings draw out the golden shekels. But he who seeks to bind in scientific laws the lightning of the mind or trace the labyrinth that lies twixt cortex and medulla, must never hope to see the gleam of gold; he feeds alone upon the thought that generations yet unborn will one day know the worth of all his patient work and will rise up to call him blessed.

It is not to be wondered at that the medical profession has been borne along with the multitude and has been given over to the search for patients and fees rather than bacteria and ptomaines. But it seems to me that the time has come when not the few (and all honor to these few who have been the advance guard) but the many should be given higher ideals; should be lifted to that higher plane where intellectual work is valued for what it produces new. No man surpasses his ideal, and before we excel in pure science our ideal must be one of intellectual power and not of material prosperity. But such ideals are not of individual creation like cathedral towers to be raised above contamination of earthly things into the clearer upper air, they must be the product of many hands and many minds, of united and concerted action. This seems to me the mission of our Academy, to be both the artist to conceive and form, and the guardian to preserve and sustain an ideal medical spirit of the

profession of this city and our country. No great conflict is ever waged successfully without one controlling mind: we have in this city many strong minds, but they are like an army of undrilled recruits, much of their work is rendered useless because unconcerted; often it is simply repetition which might have been avoided, and the general result is weakened in authority and lessened in value, because often incomplete and defective.

Medical men need a "clearing house," as much as do the banks; they need an exchange where each may bring the results of his work, and learn what his fellow-worker may have done in way of support or opposition, and most of all we need a controlling spirit, a head to plan lines of attack, to bring together the scattered forces for their own and the general good. It is my ambition to see the Academy occupy this position, standing as the centre about which all the workers of our city may gather, giving them in return loftier ideals, inspiring in them stronger ambition to be truly scientific men, while it not only encourages, assists, and stimulates them to better work, but also rewards every praiseworthy achievement.

In order that our Academy may thus become the centre of the scientific activities of the entire profession it must have a suitable home, a building that shall furnish accommodations for a large and well-selected library, with reading rooms and commodious meeting rooms for all the medical societies of the city. Such a building the Academy is now struggling to establish. Our organization is no longer an experiment, it has passed successfully through the perils and contentions of its infancy, childhood, and youth, and is now entering its full manhood. The spirit of devotion to a high scientific purpose which actuated its founders and which has always been one of its characteristics, has caused it from year to year to grow in professional esteem and public confidence until it may be truly said that it is the strongest power in this city for the advancement of scientific medicine. It has outgrown its building accommodations, its library can no longer find shelf-room and is constantly exposed to destruction, the building not being fire-proof. Its Sections crowd upon each other to such a degree that their work is crippled, it is unable to do the good work it might do on account of its limited space. The need of a new Academy building with a fire-proof section for our library is an urgent one, and if we shrink from our responsibilities in this matter, we shall prove false to the legacy received from those who gave so much of labor and sacrifice to bring it to its present growth and usefulness. As we recall the many distinguished men with whose lives it is interwoven, and who did so much to make it a centre of medical thought, are we not stimulated to greater endeavors, to greater sacrifice, to an energy akin to enthusiasm which never rests until it has realized the great thoughts and possibilities which gave it birth?

What has already been accomplished gives assurance of ultimate success; never before have its Fellows been so united in opinion as to the immediate necessity of a new building. The Academy funds, with the pledges of money which have already been received, leave little doubt that before another twelve-month it will have a new building in every way adapted to its scientific work. To the accomplishment of this, let each Fellow give himself heartily, not only by contributing himself, but by interesting his friends and gaining donations from them, for, as has often been stated, each citizen is personally interested in everything that shall advance medical science.

If the profession in this city can have free access to a large and well-selected medical library, with a scientific centre where they can contribute new observations, new facts, and new methods of treatment, subject to the criticism and judgment of their peers, and where each one shall criticise in a scientific spirit the offerings of others, the public will receive in their medical attendants greater skill, more careful and intelligent observation, and as the medical profession as a body shall rise to a higher plane of scientific worth, the sick will turn less frequently to empirics for relief in their hours of suffering and in their struggles with disease. The sanitary safety of our great city will no longer be committed to unprofessional and unscientific hands, but will seek the protection of a broader spirited and more enlightened profession, who, by wise councils and more practical methods, shall protect it from the ravages of those diseases which it is being demonstrated each year may be limited, if not altogether prevented, by the new and more advanced methods which are being formulated by a broader and more perfect sanitary science.

It does not seem possible that men of wealth, whether selfish or broad-spirited, with such and kindred thoughts before them, will long hesitate to furnish the required means not only to build a new Academy building, but for so increasing its library that it shall become the central attraction for scientific workers in our city and the whole country.

But, gentlemen, I would not speak only of the material interests of the Academy, of its building and library, I would congratulate you on the broader spirit which is being developed in its membership; we are each year becoming more tolerant toward the opinions of others. The links which bind together junior and senior members of the profession are being forged with greater strength. The jealousies and intolerance of cliques are fast giving place to liberality and good fellowship. The questions now asked concerning a Fellow are not of his birth or of his school, but "has he done good work, and is he likely to do more?" We rejoice in no medical politics, or medical ethics; a scientific atmosphere is pervading everything that is being done. Men, who heretofore have stood aloof, and who have done their work in special societies, are coming into its Sections and making them effective. This centralization should go on until in the Academy would be found all the best thought and the best work of the entire profession. Let it become the fountain from which shall flow the purest streams in every department of medical science, a place where the young and old, the savants and the young enthusiast shall cross swords in that spirit of deference which one scientific worker is always willing to accord to his fellow.

Treatment of Erysipelas.—DR. NOLTE (*Allgem. med. Centr. Ztg.*, No. 100, 1888) has in the treatment of this affection for years used mucilage of gum arabic with carbolic acid. The affected parts are painted daily with mucilage containing from a three to five per cent. carbolic acid solution, and allowed to dry.—*Therapeutische Monatshefte*, Jan. 1889.

CLINIC ON NERVOUS DISEASES.

Held at La Salpêtrière (Paris).

By PROF. CHARCOT.

(Specially reported for THE MEDICAL NEWS.)

DIAGNOSIS OF CAPSULAR HEMIANÆSTHESIA AND HYSTERICAL HEMIANÆSTHESIA.

THE case of this woman, which I bring before you to-day, may appear a very common one, yet it is a very interesting one, as there is a difficult question to find out. This woman's age is forty-seven, her father died in two days from cerebral apoplexy; this is all her family history. In regard to her personal history, she has been quite free from all sorts of diseases until two years ago, when she was attacked by the disease which has left her in her present state.

One evening in June, 1888, going to bed, she felt her head to be very heavy; the following morning she was found in an unconscious state, which lasted, it appears, about fourteen days. When she then came to herself, she was completely paralyzed on the right side, the paralysis affecting at the same time the inferior portion of the facial nerve, the upper and lower extremities; traces of this paralysis still persist to-day. She came to herself, according to her statement, at the end of fourteen days; but she does not remember, for after her return to consciousness she remained for several weeks more or less completely amnesic, whether her inferior extremity began to move first, or whether, on the contrary, it was the upper extremity, which would be contrary to what we usually observe; nor can she say exactly at what time she began to walk.

For the past year she has remained in the state we find her in to-day—that is, a hemiplegia affecting the right face, upper and lower extremities, with the particularity that the facial paralysis has persisted longer than usual, for ordinarily it disappears with time. I shall even add that the facial paralysis has remained much more accentuated than the paralysis of the extremities, which is an anomaly in a case of capsular hemiplegia.

You probably will say, "Why, this is a simple case of capsular hemiplegia, with certain particularities of a secondary order." I think it is a case of capsular hemiplegia, but let me recall to your memory the fact that the internal capsule can be involved in its anterior portion, in front of the genu, or in its posterior portion. If you find a more pronounced hemiplegia of the extremities, it is because, in all probability, the posterior portion of the internal capsule is involved. When you have a case in which facial paralysis persists, and this is very rare, it is when the anterior portion of the capsule has been involved. The portion of the pyramidal fasciculus which concerns the inferior facial (cortico-bulbar fasciculus) passes in the capsule in front of the genu, while the cortico-brachial and cortico-crural fasciculi of this same pyramidal fasciculus are placed behind the genu, the first one very near the genu, the second a little behind the preceding.

These facts have been demonstrated by both anatomical and clinical observations, as well as by the experiments on animals, and particularly on the monkey, by Pitres, Franck, Horsley, etc. In this manner you will comprehend that in capsular hemiplegia you might have sometimes a predominance of the facial paralysis, or, in other cases, the predominance of either the paralysis of the inferior or superior extremities. In most cases, this paralysis involves every one of these parts, and rarely, I repeat it, does facial paralysis persist very long in ordinary capsular hemiplegia, for in such cases experience has demonstrated that the posterior portion of the internal capsule alone has been destroyed by hemorrhage or softening, while the anterior portion, the one which concerns the movements of the face, has only been compressed, and not destroyed.

In this woman, I think, we have to deal with a capsular lesion, which consisted of a hemorrhagic effusion, to-day replaced by a cicatrix; but this lesion has involved at the same time, and very much so, the anterior portion of the internal capsule, as well as the posterior portion of the same. These last have been less severely injured, for, contrary to the rule, we find that the inferior extremity has been more profoundly affected than the superior. I explain this as follows: The hemorrhagic centre was longitudinal and curved, one of its extremities injuring the internal capsule in front of the genu, while the other extremity occupied the very posterior portion, but involving in part the cortico-brachial fibres which are between the two preceding tracts.

Let me say one word in regard to the paralysis of the inferior facial: it is not always easy to find it out when slightly pronounced. Is it necessary for me to recall to your memory the fact that the region of the inferior facial alone is involved in paralysis due to central clots, and that the non-involvement of the orbicularis palpebrarum establishes a contrast between peripheral facial paralysis, for this last is total, and affects at the same time the superior as well as the inferior facial?

The second patient I now place before you suffers from peripheral facial paralysis, or paralysis *a frigore;* as you may see, he cannot close his eye on the paralyzed side, while our right hemiplegic by capsular lesion can do so, and closes very well her right eye. We must not forget, however, that certain lesions of the protuberance can involve the facial when completely formed, and produce a total facial palsy, which would resemble the one produced by a lesion of the facial nerve at its exit from the Fallopian canal, but this is never seen in capsular lesions, or lesions of the cortex, paralysis of the inferior facial alone is found in such cases.

As I said a minute ago, facial paralysis, when not very apparent, is not always easy to define, and demands great care. Our female patient has a facial paralysis on the right side; on the same side she is hemiplegic, the right labial commissure is lowered, it is the paralyzed side; it is, on the contrary, elevated on the opposite side, where you find the naso-labial fold well marked; these are all usual symptoms. I shall add, also, that the lips on the paralyzed side are thin, and the mouth linear, while they are comparatively thick and the mouth slightly opened on the opposite side.

In such cases we are sure of our diagnosis; but sometimes the deviation of the mouth is much less pronounced, and the existence of facial paralysis can be doubted. In such cases, especially if the patient is of a certain age, consider the wrinkles. You can see on our patient how those on the lower and upper lips and chin are numerous, very accentuated on the non-paralyzed left side, while on the right side the skin is quite even.

Again, in the upper portion of the face you will find that the wrinkles are the same on either side. Again, if you tell your patient to show his tongue, according to the rule, when drawn out it is deviated on the paralyzed side—that is, in our case, on the right side, but here it is very slightly marked.

Let me call your attention to the fact that in cases of hemiplegia in which the tongue is deviated, the two halves are equal, one as broad as the other; the axis of the tongue remains linear, not curved toward the side where the mouth is deviated, as we shall see exists in certain cases which simulate hemiplegia of the inferior facial with deviation of the tongue, and in which we have no paralysis, but a spasmodic affection of which I shall speak to you in a few moments.

The father of this woman died from cerebral hemorrhage; she, herself, has had a cerebral hemorrhage—this is all very natural. You all know that cerebral hemorrhage is an hereditary disease. But you will say again to me: Where is that great interest you attach to your case? Well, here is the difficulty which makes out of this simple case a very interesting one for the clinician. It is that our patient is absolutely hemianæsthetic on the right side, as absolutely so as is the hemianæsthesia of hysteria; hemianæsthesia is so very pronounced in her case that you can introduce pins in any part of her paralyzed side without her feeling the least sensation; not only is she hemianæsthetic to the touch, but also to cold, pricking, and special sensations; half of the tongue does not taste bitter substances; the right nostril does not recognize odors as does the left; the right ear does not hear as well as the left. And, finally, the field of vision is narrowed on *both* sides, as is seen in hysterical patients, and, according to the rule, it is not hemiopic.

I have examined the fields of vision of hysterical patients thousands of times, and I desire to impress it on you once more, as the occasion presents itself, that I have always found a *double amblyopia more pronounced* on the *hemianæsthetized or unilateral* side, but *never* have I found *hemiopia*.

It is not usual to see hemianæsthesia, especially such a pronounced one as that we have before us, in a case of capsular hemiplegia. Briquet has said that when we meet with a very marked case of hemianæsthesia, we, in all probability, have to deal with an hysterical patient; in fact, a total hemianæsthesia is a very rare event in organic hemiplegia due to a hemorrhagic clot that involves more or less directly the internal capsule. There is a tendency amongst the young members of the profession to restore the opinion of Briquet. There was a time when, in the presence of a sensory or sensitive hemianæsthesia, the practitioner thought he had to deal with a case of lead-poisoning or alcoholism, for it was then thought that these two conditions could produce a hemianæsthesia resembling an hysterical hemianæsthesia. It has been demonstrated to-day, however, that when hemianæsthesia appears in an alcoholic or lead patient, it is due to the coexistence of hysteria in the same subject. This being admitted, we asked ourselves whether these hemianæsthesias were not due to a capsular lesion.

Turck's observations and mine have demonstrated to us, that certain capsular lesions can produce hemianæsthesia exactly similar to that presented by hysterical patients. Certain clinicians, however, question to-day their existence, and say that capsular hemianæsthesia does not exist. So that, according to the opinion of Briquet, every time one meets in a patient a more or less developed hemianæsthesia, this is almost certainly due to hysteria, and even reveals this condition. Well, I protest against such an assertion. Alcoholic and saturnine hemianæsthesias do no more exist. But capsular hemianæsthesia still persists,—it is very rarely completely developed; but such cases occur, and the one you have before you to-day is an example.

Let me mention to you the anatomical conditions found in cases in which sensory or sensitive hemianæsthesia is produced in combination with capsular hemiplegia, according to Turck's and my observations. It is when the lesion is situated at the extreme posterior region of the internal capsule, behind the region where the cortico-crural fibres of the pyramidal fasciculi pass—in fact, in the region which I have designated under the name of "carrefour sensitif" (sensitive cross-road). This I said twenty years ago; I have repeated it many times since, and I think myself authorized to repeat it to-day; and I shall add, that this capsular hemianæsthesia, when very accentuated, does not differ very essentially from hysterical hemianæsthesia, and particularly as regards the field of vision: it is not hemiopia that you will observe in such cases, but it is the crossed, unilateral, or double amblyopia, exactly as in cases of hysteria. Hence, leaving out of the question saturnine and alcoholic hemianæsthesias, which have no existence proper, although there are still alcoholic and saturnine anæsthesias, you see that, in a clinical point of view, we have to diagnosticate between capsular and hysterical hemianæsthesia.

To the old anatomico-clinical observations which have been presented, we can add to-day the cases which were presented some time ago, by Dr. Ferrier, before the Medical Society of London. These three cases, according to the author, resembled in every possible manner the symptoms observed in hysteria, yet at the autopsy he found lesions which occupied the "sensitive cross-road" at the posterior part of the internal capsule. Quite recently, M. Dejerine has presented before the Society of Anatomy of Paris, the history of a patient who had had a sudden hemiplegia developed at the same time a hemianæsthesia of special senses and sensation, as found in hysterics, made its appearance. At the post-mortem he found a hemorrhagic clot occupying the most posterior portion of the internal capsule. It is true, that this clot was of recent origin, while the cases related at the Medical Society of London, by Dr. Ferrier, were cases in which the lesion was an old one. If the hemianæsthesia of special senses and sensations is not encountered more often, it is because the hemorrhagic clots in capsular hemiplegia very rarely reach the "sensitive cross-road."

What demonstrates that our patient is not hysterical, is the fact that on the same side where there are a hemianæsthesia and hemiplegia there is also a palsy of the inferior facial nerve; and I am ready to maintain to-day, as I have done on former occasions, that hysterical hemiplegia involves exclusively the extremities, and does not, as is often the case in organic hemiplegia, involve the region supplied by the inferior facial. In this opinion I am sustained by the experience of Todd, De Hasse, Weir Mitchell, and others.

Affirming a certain fact brings about contradiction. If

you affirm that in hysterical hemiplegia there is no involvement of the inferior facial nerve, you will find a certain number of observations come up, demonstrating that the inferior facial can be involved in hysterical hemiplegia. Let us consider the matter more carefully. Facial palsy, due to capsular hemiplegia, with deviation of the tongue to the paralyzed side, can be imitated, in hysteria, and renders the diagnosis very troublesome, by an affection located in the region of the inferior facial, and producing also a deviation of the tongue and mouth, which affection is *not a palsy*, but a spasmodic affection. I have called attention to this pseudo-facial palsy in one of my clinics, delivered in the early part of 1887, and have named it

UNILATERAL GLOSSO-LABIAL SPASM OF HYSTERICS,

and in such hysterical patients it is not a palsy we have to deal with, but a spasm of the muscles and tongue supplied by the inferior facial.

I now place before you and beside our hemianæsthetic and hemiplegic patient with involvement of the inferior facial, a man whose case we will study in comparison with the former. This patient, although a man, is a very well developed hysteric—he is a characteristic type of major hysteria. His mother died insane, he himself has been very unlucky in his life—has had all sorts of troubles; he was one of our revolutionary soldiers during the Commune, was captured and sent to jail. Since then he has been always in a poor state of health, and whenever he requested admittance into a hospital for treatment he was rejected as a malingerer. It is true, he often contradicts himself in his statements and sometimes lies, but we must not overlook the fact of temporary amnesia, which is a mental state often encountered in hysteria of adult man; it is the physician's duty to make out what is true in his statements from what is false, and we must not reject such a man as a malingerer before his case is thoroughly studied. But he presents a number of symptoms which cannot be simulated, such as pharyngeal anæsthesia, shortening of the field of vision—and all the series of accidents which would be very difficult, even for an expert, to place in regular order.

The more male hysteria becomes known, the greater tendency have we to examine more carefully patients that present themselves to us, who would be often sent away as malingerers. Malingerers have a great tendency to exaggerate to an extreme degree the symptoms of the disease, whether it be insanity or hysteria, and it is always by studying carefully these exaggerated symptoms that we are able to make out the simulation.

Coming back to our male patient, I have had the opportunity, in past years, to be present at several of his hysterical attacks, which, I repeat, were classical. He suffers at present from a hemianæsthesia of the left side, a shortening of the field of vision, and hemiparesis on the same side. The motor hemiplegia has been more pronounced than it now is; this man who presents the above symptoms has, in addition, a hemiparesis of the left inferior facial. When he protrudes his tongue, it is carried to a marked degree to the left side—that is, on the paralyzed side, as is found in organic hemiplegia.

You certainly will say to me, why, a paralysis of the inferior facial in an hysterical patient—that contradicts all that you have just said. Examine the patient more carefully; when his tongue is protruded it is deviated to the left side, but notice at the same time that the lingual axis forms a very accentuated curve, the concavity of which is turned toward the left side so that the tongue does not remain straight as in paralysis, but forms a curve, a hook; the left half of the tongue also appears thicker and less broad than the right side; while in cases of paralysis the two halves of the tongue are equally broad; these facts would be sufficient to indicate that we have not to deal with a paralysis, but with a spasm, or, more correctly, a hemispasm.

This fact is confirmed when you examine the muscles of the inferior facial region; if you ask the patient to contract the muscles, the wrinkles are then more accentuated on the left side, on the chin, upper and lower lips, or the cheeks, much more so than on the right side; the contrary would take place had we before us a paralysis instead of a hemispasm.

I say again that the writers who have mentioned the existence of a paralysis of the inferior facial nerve in hysterical hemiplegia, have not sufficiently studied those glosso-labial spasms frequently found in hysterical hemiplegia and which have not been found, as far as I know, in capsular or organic hemiplegia. Lately, again, a Dutch author has recorded a case of hysteria with hemiplegia and involvement of the inferior facial. Well, I think in this case, according to the details given, that this patient, who was suspected to suffer from facial paralysis, was quite unable to protrude his tongue out of his mouth; this is not seen in simple organic hemiplegia and I would think it to be a case of hemispasm. You will say to me: Why do you not admit that in hysterical hemiplegia, which resembles so much organic hemiplegia, there should not be a palsy of the inferior facial nerve? As long as one cannot demonstrate to me that these so-called hysterical facial palsies are not hemispasms, I shall stand by my opinion until the moment when facial palsy, which I do not believe to exist in hysteria, shall become correctly demonstrated to me. From what I have just said, you are enabled to see that a marked hemiplegia of the inferior facial nerve can aid you to diagnosticate an organic or capsular hemiplegia.

What can be the physiological reason which seems to separate so widely hysterical from organic hemiplegia? I have shown you, in former years, that in hysterical patients who can be hypnotized it is easy for you to develop in them, by suggestion, all forms of hysterical paralysis, yet you cannot produce artificially a hemiplegia of the inferior facial, while, on the contrary, it is easy for you to obtain a glosso-labial spasm, exactly similar to the one we observe in our patients. The glosso-labial hemispasm which you see in the man before you, is sufficiently accentuated to be recognized, yet it is not a perfect example of the condition, but the man I now bring before you will help me to fix in your mind the characters of these hemispasms.

This poor man became hysterical two years ago, as a result of fright; he came near being run over by a large cart, and since then he has had a glosso-labial hemispasm of the left side, which we first took for a paralysis of the inferior facial. A more careful study of his case, however, showed plainly the nature of the disease. The tongue is directed toward the left side, but is in such a state of contraction and stiff, that the patient cannot draw it out of his mouth; it forms a very curved hook,

the concavity of which looks backward and to the left; at the same time the face is deviated; but the labial commissure being drawn upward and to the left, and the mouth on that side being slightly opened, it is easy to recognize the spasm, for the upper lip of the same, or left, side is almost continuously agitated by small convulsive tremblings.

Let me add, that the glosso-labial hemispasm can exist alone, without being combined with hemiplegia, such as is exemplified by the patient I now present before you.

HYSTERO-TRAUMATIC PARALYSIS.

You know that I maintain that hystero-traumatic paralysis possesses sufficiently marked characters that allow it to be recognized in the majority of cases.

Here we present to you a young patient who suffers from muscular atrophy, non-spinal amyotrophy, which has been named by Duchenne de Boulogne hereditary muscular atrophy; in addition, our young lady is a classical hysterical patient, and has a hemianæsthesia of the right side. I showed you, a few weeks ago, the case of a woman who, after having struck her child in the face, felt her hand hanging: that was a case of hystero-traumatic epilepsy.

Our present patient, a few days ago, while awaiting her turn to be electrified, in the adjoining room, where the electrization is going on, placed her hand unconsciously on the strap which communicated its movement to a static electric apparatus, and the left hand was slightly pinched between the strap and the motor wheel. As soon as this was done, the patient, very much frightened, felt in her left hand and forearm a certain numbness, and four or five minutes later *only* did the paralysis of the fingers and wrist present itself. It was at this moment absolutely impossible for her to move her fingers and wrist, which fell without any trace of contraction. Absolute cutaneous anæsthesia extending as far as the upper portion of the forearm, and limited by a line perpendicular to the axis of the forearm, assuming the form of a long glove, and deep anæsthesia of all the parts were found to exist.

All this is very correct, but here is the interesting fact: on the right side, where the hemianæsthesia was total before the accident, insensibility has completely disappeared from the hand, wrist, and lower half of the forearm, sensibility has returned on this right side, in exactly the same region, which is the only part insensible on the left side. In this case we have a transfer from one side to homologous parts on the other side, such as is sometimes obtained by the applications of metallic plates or a magnet according to Burq's method. Hence, the transfer of sensation can be produced by a traumatism, exactly as if æsthesiogenous agents had been applied; this I had never observed before under such circumstances.

It will probably be very easy for us to obtain a cure in this case; you know that I believe that hysterical contractures or palsies must not be allowed, as far as possible, to remain very long; it is usually very easy to make them disappear when they are of recent occurrence, but it is not so easy when they have lasted for some time. Our patient can be hypnotized; she presents the three stages of major or great hypnotism; we shall probably obtain a cure of this affection during the somnambulistic stage, by suggestion, as we have done already in certain cases, although not so often as we would have desired it.

It is natural for us to infer that such a transfer of sensibility, as is observed in the preceding case, is not an anomaly, an exception, but we can find it in analogous circumstances. A few days ago the same occurred in an hystero-epileptic in my service, but I did not bring her before you, as she was, according to my view, cured as soon as the hystero-traumatic epilepsy made its appearance. Her history is as follows:

Young lady, aged eighteen, easily hypnotized, presents all the characters of major hysteria, with a hemianæsthesia on the left side. One Sunday, being angry, because the stove of the ward did not give off enough heat, she kicked it vigorously with her left foot, which was in a normal condition at the time. Immediately after she had kicked the stove, however, the left leg and foot became very heavy, accompanied by a sensation of numbness; and when the patient tried to put her slipper on, which had fallen off, she remarked that her foot was hanging and absolutely insensible. The same occurred in this patient as had taken place with the other, when she placed her hand on the motor strap, producing paralysis of the hand. The foot in this last case was also completely and deeply anæsthetized, with loss of muscular and articular sensation. In this case, a transfer of sensation had also taken place to the right foot and the inferior part of the leg, which had previously been in a state of hemianæsthesia, now presented a normal sensation; this girl was cured of her paralysis by hypnotic suggestion.

HYSTERO-EPILEPSY.

This patient I present to you now, was treated eight years ago by my excellent colleague, Dr. Labbé, for six months, for attacks of epilepsy. According to the patient's statement, he had an aura, a sensation of vertigo was the beginning of the attack, and he gradually lost consciousness. He does not remember whether he felt constriction of the neck, but he recollects that he heard, previous to his attack, a whistling in his ears. He has had as many as seven fits a day; some of them would last two or three hours and when he had a fit several men were necessary to keep him down—he rolled about, twisted himself in every possible manner, and broke everything that came within his reach: such are his statements. He has been cured since he left the hospital.

Well, gentlemen, according to the description given us by this man, I think I can state that we have not a case of epilepsy to deal with. When an epileptic has a fit he is more quiet, he falls suddenly in a corner somewhere, and he does not strike around him, as this man has done, and four men are not necessary to keep him down; moreover, the evolution of the disease, the great number of fits in a relatively short time, the existence of a special aura, and finally the absolute cure of the patient, all indicate hysteria—and major hysteria.

He has never had any fit in bed, but he now occasionally awakens with a sentiment of fear. Let us see if there are no remains of hysteria, no shortening of the field of vision, or anæsthesia. Asking him why he comes to consult us, since he has been cured of his fits, he tells us that when he wants to cross a large empty square, the larger the empty place is the more frightened he is; he is unable to move his legs, they are as if they were

cut—he says that they are like lead; in addition, he experiences an indescribable emotion. If I ask him whether he is able to get over his fear, and cross the place, he tells me he cannot do so, and he fears he would lose consciousness should he attempt it. When he desires to cross a bridge he has the same fear, but to accomplish this he follows a car, looking in its interior, and, says he, should he find that he was going to feel bad he would jump into the car, and cross the bridge in that manner, without knowing it. This state is called "agoraphobia," a special nervous state, which has been discovered by Professor Westphal, of Berlin.

When travelling on a railroad he is frightened, because he feels he is locked in; and whenever he is placed in a narrow space he feels uneasy. The other day when a train in which he was began to move he had the sensation of a vertical or perpendicular rapid descent and he quickly rushed out of the car at the risk of killing himself; but the annoyance of this sensation was so great that he was unable to control himself. This is a vertigo or hallucination of translation, which occurs in a very slight degree in certain persons; when at night, the train begins to move, we feel suddenly as if the train was going in the opposite direction, and sometimes as if we were going perpendicularly down. While crossing a bridge in a train, our patient has also thrown himself down on the floor of the wagon, not knowing that he was doing it. This belongs to the section of height vertigo. The same occurs when he finds himself in a very high house, and looks out the window: he has then a terrible fear, a great uneasiness.

This state of fear and vertigo has existed only since he has had his convulsive disease. This disease he attributes to a fright; three men rushed on him one night, which caused him a great fright, which was followed by tremor; but this I only consider as an occasional cause. He dreams, and he has sometimes thrown himself out of bed, dreaming that he was falling. He is unmarried. He tells us a very interesting fact of his family history—his uncle died insane after two attacks of insanity. Here we have the real cause of his trouble, heredity. This case is a very interesting one to study.

ORIGINAL ARTICLES.

SOME HELPS IN GYNECOLOGICAL PRACTICE.

By W. A. N. DORLAND, M.D.,
OF PHILADELPHIA.

The class of patients met with in the practice of gynecology is of such a varied character, and the pathological conditions, though somewhat limited in their number, are of such frequent occurrence, that in whatever locality the practitioner may settle, unless strictly confining himself to some specialty in his profession, he necessarily is called upon sooner or later to alleviate the sufferings of these unfortunates to whom seems to have been portioned more than their due allotment of the ills of humanity. Too frequently, when such emergencies arise, does he find that that special branch of his medical education has either been sadly neglected by his alma mater, or carelessly overlooked by himself, and that, no matter where the fault may lie, he is utterly unable to respond with any degree of intelligence to these demands upon his professional skill.

It is with the desire to be of some assistance to such that the writer has sought this opportunity of advancing the suggestions which follow, not laying any claim whatever to originality, but merely stating that as they have been, from time to time, presented to his notice, he has thoroughly tested them in both private and hospital practice, and found them to be valuable and reliable adjuncts in the treatment of the respective conditions.

They are as follows:

In the first place, it will be noticed that the great majority of these patients present a marked degree of *anæmia*, as evidenced by the blanched conjunctivæ and lips, and general pallor of the skin. This anæmia is accompanied by the varied symptoms of dyspepsia—eructations of gas, poor or variable appetite, sometimes complete anorexia, a bad taste in the mouth, and severe headache, generally frontal in character. In such, often a marked improvement is manifested in a short time from the judicious use of some tonic such as the citrate of quinine and iron in two or three grain doses three times daily, or the following:

℞.—Strych. sulph. . . . gr. ss.
Acid. phosph dil. . . . ℥ij.
Liq. pepsin. . . . . q.s. ad. ℨiv.—M.

S. A dessertspoonful three times daily before meals. Under such treatment not only will there be a general improvement of the health, but the local condition will often be decidedly benefited.

Our attention will next be called to the *condition of the bowels*. These will generally be found to be constipated. Professor Goodell has said that, were he asked, he would define woman as "a constipated animal," and he would be justified in so doing, many women having but one or two evacuations weekly or even less, while a digital examination per vagina reveals large fecal masses widely distending the bowels. It is important that this condition be remedied, and this may be accomplished by the daily use of a drachm of the compound licorice powder taken at bedtime, or by divided doses of calomel, as the one-sixth of a grain in a small amount of the sugar of milk every half-hour till a grain has been taken, this amount generally proving sufficient to produce a free discharge of the hardened feces. In still more chronic cases we may employ one of the following mixtures according to the urgency of the condition:

℞.—Ferri sulph. exsic. . . . gr. xv to ℥ss.
Magnes. sulph. . . . ℥ij.—M.

S. A teaspoonful in a wineglassful of water with a little lemon-juice before breakfast.

or,

℞.—Aloin . . . . . gr. iij.
Res. podophyl. }
Ext. bellad. } . . . āā gr. iss.
M. Ft. Pil. No. xii.

S. One to be taken at bedtime.

By the employment of one or the other of these remedies, together with proper attention to the diet, the bowels may be easily regulated.

In almost every instance, *leucorrhœa* is one of the most prominent symptoms complained of. This may be simply the viscid, white-of-egg discharge of cervical endometritis, or the purulent and, at times, blood-streaked discharge of corporeal endometritis; or it may be the copious, thin, bloody, and offensive discharge of carcinoma, or the thin and purulent discharge of vaginitis, specific or otherwise. Whatever the condition producing it, it can only be properly treated by treating the cause. Where, however, this is not immediately possible, much can be done toward reducing the amount of the flow, and thus contributing to the cleanliness and comfort of the patient, by the use of the hot water douche. The patient should be advised to procure a fountain syringe, and instructed to inject, night and morning, a gallon of water as hot as can be conveniently borne, thoroughly up the vagina, lying upon her back at the edge of the bed with her feet resting upon two chairs, and a basin placed between to catch the water. These injections should be followed by a quart of hot water containing some astringent mixture, such as the following:

℞.—Plumb. acetat. . . . . ʒj.
Acid. borici . . . . . ʒij.—M.

Of this a teaspoonful should be employed in the injections. Considerable amelioration follows such treatment.

Endometritis is an extremely common affection, almost every woman presenting herself to the physician for examination revealing this condition to a greater or lesser extent; nor is it to be wondered at that such is the case, when we consider the great variety of causes, both predisposing and exciting, to which that delicate organ, the womb, is exposed. As to what these causes are and their degrees of frequency, the reader is referred to the text-books on the subject. Attended, as endometritis is, not only with local but also with marked general manifestations destroying the mental equanimity as well as the physical health and rendering life a burden to the wretched sufferers, it is all important that prompt and vigorous, as well as judicious and careful, attention should be given toward improving the condition of the endometrium in these cases. Much can be done in this direction by the use of the stronger (Churchhill's) tincture of iodine, the formula of which is as follows:

℞.—Potas. iodid. . . . . gr. xc.
Iodi. . . . . ʒijss.
Alcoholis . . . q. s. ad ℥iv.—M.

Applications of this made two or three times weekly, not only to the cervix but also to the canal, have a beneficial effect upon the unhealthy membrane.

When there has been a laceration of the cervix and considerable erosion and rolling out of the lips have followed, the iodine may be substituted by pure carbolic acid, to stimulate the eroded surface and bring it into a more active and healthy condition. Or an impervious coating may be formed over the raw surface, thus protecting it from the irritating leucorrhœa, by applying twice weekly the following preparation:

℞.—Iodoform . . . . . ʒj.
Acid. tannici . . . . . ʒiij.
Collodion . . . . . ℥ij.—M.

The bearing-down pain, so often complained of in these and, in fact, in all uterine and ovarian cases, may be relieved by the use of the hot water bag placed over the small of the back, and retained there for a considerable portion of the day, renewing the water as the temperature falls.

In many cases of *retroversion*, where the use of pessaries is not advisable, and where radical operation will not be permitted, temporary relief may be afforded by placing the patient in the Sims' position, and after reducing the displacement as far as possible by the finger, inserting far up behind the cervix one or two cotton tampons well saturated with glycerine. These often have a very pleasing effect upon the backache, and render the patient quite comfortable for the time.

They are also very serviceable in cases of *chronic cellulitis*, where there is much deposit of exudation around the womb and in the broad ligament. The hygroscopic properties of the glycerine draw to it the watery portions of the blood, thus aiding greatly in breaking down the exudate and removing it. The tampons should be withdrawn, in all cases, in thirty-six hours, and their removal will be followed by a free watery discharge from the vagina.

When there is much *irritability of the bladder*, from whatever cause, as shown by frequent micturition and inability to hold the contents of the organ, a happy result may be obtained by the use of some diuretic such as the following:

℞.—Ammon. benzoat. . . . . ʒij.
Infus. buchu . . . . . ℥vj.—M.
S. A tablespoonful every four hours.

The free administration of this preparation will be followed by a marked reduction in the vesical irritation, much to the satisfaction and relief of the patient.

In patients suffering from *menorrhagia*, *metrorrhagia*, or from *continuous and excessive flow after*

abortion, a most happy result may be obtained by administering equal portions of the tincture of the chloride of iron and the fluid extract of ergot, in doses proportionate to the severity of the case, varying from ten to thirty drops of each every three or four hours. The bleeding is controlled very promptly and efficiently under the employment of this combination.

In cases of *ovaritis*, *salpingitis*, and *inflammation of the broad ligament*, accompanied with severe pain in the groin and elsewhere, as indicative of the presence of an acute inflammatory process, where operative measures may not be resorted to, much relief may be afforded by active counter-irritation. This may be accomplished by painting the cervix and the vault of the vagina with Churchhill's tincture, and applying over the painful spots in the groins the following preparation:

℞.—Olei tiglii . . . . . ʒj.
Tr. iodi . . . . . ʒij.
Ætheris . . . . . ʒv.—M.

This must be repeated until a thick crop of pustules is produced, the irritation thus made acting favorably in checking the pathological process within.

In severe cases of *follicular vulvitis* with all its distressing group of symptoms, a very prompt termination to the sufferings may be brought about by applying to the sores a solution of silver nitrate of the strength of thirty grains to the ounce. The pruritus is relieved almost immediately, and sloughs are formed, which, separating, leave healthy ulcers which quickly heal.

Silver nitrate also is very useful in cases of *hemorrhagic urethra* accompanied with pouting of the lips of the meatus and intense engorgement of the delicate membrane. When the silver fails to accomplish its purpose, carbolic acid will usually suffice, destroying the engorged capillaries and causing a contraction of the dilated orifice.

The above comprises, as has been said, a few observations which may prove of assistance to some. Such, at least, is the sincere wish of the writer.

1521 South Thirteenth Street.

A CASE OF DOUBLE FRACTURE OF THE SKULL.

By THOMAS H. MANLEY, M.D.,
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I offer this case to my professional brethren because it well illustrates the difficulties which often attend the diagnosis and prognosis of cranial lesions, especially those of a traumatic character.

B. M., male, aged thirty-five, fairly nourished, of medium size, was brought into the Harlem Hospital by the ambulance, at 2 A.M. January 6th. He was found, lying in a helpless condition, in an area, about eight feet beneath the sidewalk, by a patrolman, who was directed toward him by his groans. The officer, supposing him intoxicated, tried to arouse him, but did not succeed. He, however, discovered that the man was bleeding, from the head, quite freely.

After entering the hospital in a profoundly comatose condition, he was placed on the operating-table, when it was found that he had a scalp-wound above the ear, to the left, from which the blood freely oozed. The wound was enlarged by a crucial incision, and the surface of the skull carefully examined for fracture, but none was found.

He lay unconscious for nearly forty-eight hours, when reason gradually returned. The marked dilatation of the pupils disappeared; he changed from side to side, asked for food and drink, and, indeed, seemed to show evidence of returning health. This interval of lucidity, however, was of short duration, as he soon commenced to complain of pain about the forehead, and became more or less somnolent. At this juncture ten ounces of blood were quickly taken from the cephalic vein, hoping that this measure might abort the threatening meningeal trouble. He was much relieved by the venesection, brightened up, and said the pain was relieved greatly. Within ten hours he again relapsed into a stupor from which he could only be aroused with difficulty.

By the sixth day his temperature went up to 105°, and he was constantly muttering in a dazed, dreamy state. He would take no food, and had involuntary discharges. On the seventh day, for the first time, we found the pupil on the left side much contracted, the opposite about normal.

It was now evident that there was pressure somewhere close to the origin of the trigeminus, and that the brain-substance was being compressed by either pus or blood. I eliminated the latter, because of the patient regaining his reason, there being no paralysis, and the period at which those serious symptoms supervened. On the other hand, with the sudden rise of temperature, which was 105° in the morning, and went up to 105½° in the evening, I was naturally inclined to suspect an abscess formation.

On the afternoon of the 13th ult., the seventh day after his admission, he was again placed on the operating-table, the head having been cleanly shaved and scrubbed. At this time he was quite weak, and it was thought that if the difficulty could be reached life might be prolonged, but, at the same time, we also saw that the shock of operation would tend to enfeeble him more.

A free incision was now made through the old wound, all the tissues drawn away from the original incision, and the pericranium elevated, or rather *scraped off the skull*, thereby bringing the bare, denuded bone-surface into view, when a fracture was discovered, of a quite small area, triangular in form, at the junction of the temporal, parietal, and frontal bones; it was but slightly depressed. Over this rent the trephine was placed, and a large button of bone removed in pieces.

We were very cautious, in going through the inner table, not to wound the dura mater; but we found this care unnecessary, as between the inner surface

of the cranium and its fibrous investment there was a space of more than half an inch filled with a firm, compact blood-clot. A second circle of bone was removed, to make room for operating within the cranium, and thoroughly displacing this large mass of coagulated blood.

The index-finger was passed in, and the clot, which was well organized, was broken up and displaced. The finger was carried in every direction, down even to the petrous portion of the temporal bone, and, with the aid of the irrigator, every portion of this foreign body removed. After the removal of this immense mass, the brain did not expand in the least, and a large, hollow space was left.

Antiseptics were rigidly applied throughout. Now, that this effusion and pressure were removed, we looked for some hopeful signs from our patient, but our efforts proved futile. He became chalky-white, and the extremities cold; in fact, he was suffering from shock, with alarming depression of the vital powers. I raised up the lid of the left eye, and found the pupil *still contracted*, notwithstanding what had been done.

Besides my colleague, Dr. John G. Truax, there were several other medical gentlemen present, who, with myself, supposed the patient would have rallied after what we presumed must be a successful operation.

Heat and the usual restoratives were most assiduously applied, but he gradually succumbed at 8 P.M., four hours after the operation of trephining.

The query now very properly was, What caused his death? Was it caused by delaying the operation too long? It will be remembered that I had the assurance of the house-staff that no evidence of fracture could be found when admitted; hence I assumed that it was probably a case of concussion, until graver symptoms supervened. After carefully studying the matter over myself, I decided that he probably died from loss of blood during the operation. I thought it possible that, in displacing the clot, we might have reopened the vessel from which the original leak sprung; hence I made up my mind, if I ever should cut down on a similar formation, I would be more chary about removing it all at once.

We were fortunate in getting permission to open the head after death, when, to our amazement, we found a large fracture at the base of the skull, entirely independent of the fracture described, extending from the foramen magnum up through the occipital well into the perietal bone. No hemorrhage was found in the course of this fracture. The hemorrhage contributing toward the removed clot was found to have come from the vessels of the diploë pushing away from the skull the dura mater, as it increased in volume, until it had torn up a section of this membrane nearly as large as the palm.

This man then had, along with the fracture anteriorly, a fracture of the *base*, without a single symptom of this mortal lesion, if we except coma. No hemorrhage from the ears, no suffusion of the loose, cellular tissues about the eyes, and not the slightest paralysis.

The singular course of this quite unique case I believe to be of sufficient interest to publish, as such are rarely met with. I have now treated one hundred and fifteen fractures of the skull in hospital, but the peculiarities and puzzling features of any similar to the one recorded I have never before met.

THE CURVILINEAR REFLECTION OF WEISS AS A PRODROMAL SIGN OF MYOPIA.

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IN a paper read before the Heidelberg Ophthalmological Society, in September, 1885, Dr. L. Weiss discussed as "the earliest variation in the near-sighted or near-sighted-becoming eye," an appearance in the eye-ground to which he had called attention at the Baden-Baden meeting of the German Naturalists and Physicians in 1879. This appearance he described as a brilliant curvilinear reflection to the nasal side of the optic disk, and nearly concentric with it. Its length, breadth, and distance from the disk-margin may vary considerably, not only in different cases, but even in any given case with variations in the illumination. He differentiated it from the numerous flitting reflexes of the retina so marked at times in the eyes of children—the watered-silk retina of some English writers—by its form, its relative steadiness, and its relation to the inner margin of the nerve; but especially by its position decidedly in advance of the eye-ground. The more near-sighted the eye in a progressive case, the further out in the vitreous chamber would it generally appear, and the more widely to the nasal side of the disk. Examining the eyes of the pupils in a gymnasium and preparatory school in Manheim, with reference to the frequency of its occurrence, he found it in 20.6 per cent. of 446 hypermetropic, in 32.6 per cent. of 356 emmetropic, and in 69.4 per cent. of 292 myopic eyes—in 38 per cent. of the total 1074 eyes studied. It was, therefore, not at all confined to the myopic eye, although more frequently there seen; its importance lay in its marking the *distending* eyeball, whatever its refraction, and in furnishing a most valuable prodromal sign of myopia early enough to permit of combating the evil.

As to the causation of the appearance, Dr. Weiss claimed that it was due to the presence of fluid in front of the optic nerve entrance—fluid separating the vitreous from the retina over a limited area at the posterior pole of the eyeball—and that the curved boundary of this collection formed the surface from which the reflection proceeded. His investigations

of myopic eyes (*Mittheilungen aus d. Tübingen Augenklinik*, I. 3, p. 63) had shown such collections and a sharp bending of the optic nerve at its entrance—a condition likely to interfere with the natural outflow of the intraocular fluid, and to account for such a collection within at the posterior pole; and while regarding, with v. Hasner the traction upon the nerve-entrance exercised in convergence by a too short optic nerve as the prime cause of myopia, he held that the fluid thus detaching the vitreous was not only a symptom of the distention, but also, by its pressure, one of the factors in its production.

The pointing out of so important a prodromal sign of myopic distention by an investigator whose previous work had been so valuable, could not but challenge attention; and ever since Dr. Weiss's first note upon the subject, but especially since his later paper, which was published in full in Graefe's *Archives*, xxxi., 3, p. 239, the writer, like many others, doubtless, has been endeavoring to study the matter. The point was unquestionably a new one; and it seemed a little humiliating that in ophthalmoscopic work which he had flattered himself was careful, he had never taken cognizance of such an appearance. The total failure, however, to find it in hundreds of cases in which it was sought with scrupulous care had nearly changed his humiliation into utter scepticism; when a case came under observation, presenting so clearly the points of interest to which Weiss had called attention, that it has seemed proper to place it upon record, with some remarks upon a subject which has been little dealt with in English.

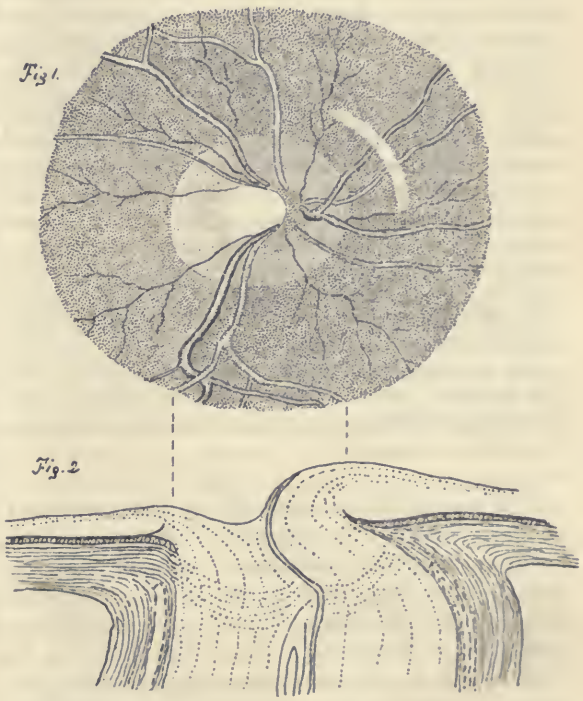
Sally L., aged eleven, came to the Eye Dispensary of the Episcopal Hospital on October 29, 1886. The brief and imperfect notes show that her myopic astigmation was measured under atropine, and her glass as given for constant wear was

O. D.—3. 5 sph.—2.25 cyl. ax. 150° $\frac{20}{LXXX}$

O. S.—1.5 sph. $\frac{20}{XL}$.

While the record fails to show full details as to the normal appearances of the eye-ground, the completeness of the paralysis of accommodation, or even that the full correction was ordered, it is safe to assume that the contrary would have been noted in accordance with the usual routine. She returned on March 2, 1888, complaining that her vision was no longer sharp through her glass; and examination showed a greatly lowered vision, especially on the right, due to an apparent progression in the myopia. Under full atropine mydriasis, the left eye showed unchanged refraction and vision; but the right eye now required —6 sph.—1.50 cyl. ax. 150°, and obtained a vision of $\frac{20}{LXIV}$. There was marked tendency to divergence of the right eye, which lessened materially under the use of the correcting-glass, but remained periodic, and gave rise to double vision. A tenotomy of the right externus was done after some weeks, there being full excursion of the eyes in all directions, with the result of greatly lessening the deviation; and several weeks after the operation diplopia had disappeared, the eyes could be maintained in parallelism, and the vision was better with both eyes than with the right eye covered. She did not return until recently, when requested to do so, having been comfortable; but examination now shows renewed deviation of the right eye and lowered vision, apparently due to still further increase of the myopia on the right side.

In March, 1888, her eye-ground presented the appearance shown in the cut (Fig. 1), and has



Randall

changed little, if at all, in the last nine months. The optic disk is horizontally oval, with a considerable central excavation, of which the nasal margin is abrupt and overhanging, while the temporal side shelves gradually. The disk margins are slightly veiled by retinal striation, but everywhere discernible, and show neither heaping nor notable absorption of pigment—although down and out there is slight broadening of the scleral ring and the disk is least clearly defined here. Most of the vessels pass through the substance of the nerve-head, as the central artery divides before coming into view; some of them come from beneath the overhanging margin of the excavation. The whole nerve-entrance presents some of that appearance of "drag" to which Thomson and others have called attention; and, in accordance with the usual findings in such cases, the ophthalmoscope shows a considerable difference of level on the two sides. The nasal margin

of the disk is between one and two dioptres more prominent than the temporal.

To the upper nasal side of the papilla, less than half a disk-diameter from the margin, is a strong crescentic or curvilinear reflection which nearly hides the vessels which pass beneath it. Variations of the illumination cause it to shift and alter slightly, but its character and position are quite as fairly fixed as those of the reflection from the *fovea centralis*. Like the latter and other retinal reflexes, it is best seen with a convex glass in addition to the correcting-glass, and almost disappears from view when the underlying retinal details are sharply focussed. Bright, shifting reflexes are visible elsewhere in the fundus, especially along the major vessels; but these are by no means so marked as they often are in the eyes of children, and have none of the constancy of the phenomenon in question. At the first glance into the eye the peculiarity and individuality of this crescentic reflection struck me, before any other details had been noted, and I remarked to my assistant that I had found something which I had vainly sought for years. Repeated careful examination affords no visible evidence of that "supra-traction of the choroid" of which Nagel and his pupils make much note; and while the oblique position of the disk is unmistakable, it is noteworthy that in spite of the foreshortening incident to this, and although there is no broad scleral ring or conus to its outer side, the disk still appears wider horizontally than vertically. The left eye shows an eye-ground similar in most respects; but the reflection, while present, is far less characteristic in form, and blends with the ordinary reflexes along the adjacent vessels.

The question of the causation of this appearance seems important. In view of the conspicuous character of the present condition, it is hard to believe that it could have been present at the examination eighteen months ago, and have been wholly overlooked, at a time when I was rather more on the lookout for it, having recently read Weiss's later paper. The study was at that time unsatisfactory in that only $\frac{20}{LXXX}$ of the normal vision was obtained; and it is quite certain, although neither the record nor my memory serves to prove it, that repeated ophthalmoscopic examinations were made in the endeavor to improve the correction, or to obtain an explanation of the defective vision. Probably, therefore, the curvilinear reflection has appeared since the eye has suffered the increase of some two dioptres in its myopia, and is dependent upon the anatomical changes incident to that lengthening by about one millimetre of the visual axis. Most careful study gives no faintest evidence of fluid in front of the optic nerve. Cases of detachment of the vitreous by exudation in front of the retina at the posterior pole have come to my notice, and were readily recognized and correctly interpreted before I had seen reference to them by others. I am, therefore, as little prepared to admit the presence of fluid here upon this one bit of assumed evidence, as I am to concede the opposing view of Stilling, that there is *always* fluid between the vitreous and the posterior pole, filling a lymph-space which normally exists there (area Martegiani). If there be normally *ante-mortem* a trumpet-shaped cavity in the vitreous body, with its expanded mouth over the optic nerve entrance, ophthalmoscopic evidence of it is wholly wanting—the rare persistence of a visible "Cloquet's canal" being the exception which proves the rule. On the other hand, a glance at the section of the optic entrance in the myopic eye offers an immediate and satisfactory explanation of the phenomenon in question.

In Fig. 2 we have a tracing of one of Weiss's sections of the nerve from a slightly myopic eye (*Mittheilungen aus d. Tübingen Augenklinik*, i., 3, Pl. i.), and in all respects, except the grade of myopia, it closely corresponds to the findings in the case before us. The "drag" of the nerve-head, so generally found in such cases, is very evident, and the distention of the papilla is marked; while the form of the excavation, the prominence of the nasal margin, and the relation of the vessels are well shown. The excessively bent nerve-fibres at the nasal margin form a marked prominence, the most convex portion of which lies a little outside of the nasal margin and forms a surface eminently fitted to give back the crescentic reflection of light with which we here have to do. Close scrutiny of the present case shows no discrepancy between phenomenon and explanation. The reflection, while most marked when out of focus, can still be seen when the summit of the prominence is sharply defined; and this explanation, once considered, seems wholly to supplant any other in the case before us.

While this paper has been awaiting completion, it has seemed wise to renew the search for other instances of the phenomenon, and a series of fifty cases has been studied with scrupulous care. The examination has been made always with the undilated pupil (although often repeated with the dilated pupil), since retinal reflexes, such as the halo around the macula, are always best seen before mydriasis, sometimes wholly disappearing upon dilatation. The individuals have all been young, generally under age; and not a few of them myopic and with distorted disks, where the appearance in question might be expected. Two elder sisters of our patient, presenting similar refraction and eye-grounds, were among those studied with a negative finding. Of the fifty cases, one girl of seventeen, with H. As. ($+0.50$ sph. $\supset +0.50$ cyl. ax. 50° and 130°) in each eye, showed the curvilinear reflection in its typical form, although there was no measurable prominence of the nasal margin. The common grayish absorbing pigment ring or band to the inner side of the disk,

which Nagel regards as evidence of "supra-traction of the choroid," was quite marked in both eyes. Four other cases presented in one eye a reflex more or less corresponding in form or position to the appearance under discussion, and were demonstrable to others as atypical instances of its occurrence. Four or five others showed shimmering reflexes up and in, too completely lacking any characteristic difference from the reflexes elsewhere visible to be counted as cases in point. Of one hundred eyes, therefore, six only could be said to have presented the curvilinear reflection of Weiss. One other myopic eye, not included in the series, presented a fairly characteristic instance; so I may say that four typical examples of the appearance, and four cases that might be regarded as atypical instances, have come to my notice in the years during which I have sought it.

Small as is the series cited, its negative showing, corroborated by several years of daily experience, convinces me that the "reflex bogen-streif" of Weiss is not present in any notable percentage of cases in this locality, and leads me to doubt the frequency of its occurrence in Germany. Such a statement seems fair, in spite of its recoiling effect—calling into question the skill of the ophthalmoscopist who simply *has not seen;* and comparison of notes with other observers who have seen some instances of the appearance in question, confirms the view as to the rarity of its occurrence.

The theory of Weiss as to its causation appears to be strained. Repeated examination of the phenomenon in the case above reported has wholly failed to furnish the faintest ophthalmoscopic evidence of a collection of fluid in front of the disk. Probably such a collection would become visible only on losing its transparency, as had happened in the cases of detachment of the vitreous which I have seen. Yet some indication ought to be discoverable, if we really have here a detachment of the vitreous. Weiss's claim that the reflecting surface is measurably in advance of the retina (+1 to 4 D.) is not borne out in my limited observation; and upon it rests most of his explanatory theory. In the cases which I have studied, the reflection could be most clearly seen when the retina was out of focus, but could be followed down until the retinal surface was focussed. In this it differed in no wise from the halo around the macula, the crescentic reflection from the *fovea centralis*, or the shimmering "shot-silk" reflexes along the vessels, unless in that it could be *more* clearly seen at the retinal level.

Although Weiss has based his views upon some very important observed facts, there is too much of unproven assumption in his explanation. He starts with the point that all infants are hypermetropic, that older children are less so, and that adults are still less, or have become emmetropic or myopic. Part of this increase in refraction he ascribes to physiological growth—change of curvatures, dimensions, and refractive indices; but part he thinks due to *distention.* In a paper presented at the recent Congress in Heidelberg (*Bericht VII. Internat. Ophth. Congress*, 1888, p. 513), I furnished evidence that this increase in refraction is certainly less than has been claimed, and that "the results must be set down as rather negative, except in wholly failing to support the theory of a physiological progress toward myopia." Cases of distention do occur, as every ophthalmologist of experience has witnessed; and extensive series have been recorded by Risley, Norris (*Trans. Amer. Ophth. Soc.*, 1884, 1885, and 1886), and others. In distending posteriorly, the vitreous chamber becomes enlarged; but it is an assumption quite in opposition to our scanty knowledge of the spongy, bibulous character of the vitreous body, to claim that it is incapable of enlarging to fill the increased area. Loss of vitreous in cataract operations would be of far more serious import were that body destitute of regenerative or expansive character. More extended observation and fuller proof are needed before we can accept the view that in all distending eyes, or in the majority of them, notable collections of fluid must form to occupy the enlarged vitreous chamber. The claim that 38 per cent. of the eyes of school children present a form of detachment of the vitreous will need much modification, or more thorough substantiation, before it will find many supporters.

In conclusion, I desire to ask a careful study of this interesting question, which may have in it much practical importance, although its premises seem as yet insufficient, by all those interested in ophthalmology. The phenomenon described by Weiss undoubtedly exists; and, while striking examples of it are rare and considerable difficulty will be met in recognizing it at first, after it has been once seen its peculiar character will be apparent. I think it not unlikely that I will observe it more frequently in the future than heretofore, and hope at a later time to discuss it more thoroughly.

MEDICAL PROGRESS.

Statistics of Operations on the Gall-bladder.—Dr. A. Depage, in the course of a paper upon "Surgical Intervention in Biliary Lithiasis" (*Journ. de Méd. Bruxelles*, 1888, No. 24), says that up to the present there have been 78 cholecystotomies performed. Of these operations, 6 were done according to the method of Spencer Wells, 72 with suture of the gall-bladder to the abdominal wall. Of the first-named series, 3 died from acute peritonitis, 1 cured case was followed by recurrence, and 2 cases were completely cured. Of the second series there were 11 deaths, 5 from hemorrhage and collapse, 2 from biliary retention, 2 from effusion of bile into the peritoneum, and 2 from undetermined cause; there were also 4 deaths from sec-

ondary complications. Amongst the "cures" are 24 cases of biliary fistula, some permanent. The number of cholecystectomies has been 22, with 2 deaths from obstruction of the bile-duct, and 1 after recovery from the operation from a cause independent of biliary lithiasis. Thus, in cholecystotomy with suture of the gall-bladder, and its return free into the abdominal cavity, a mortality of 50 per cent. resulted; in cholecystotomy with suture of the bladder to the parietes, 15.27 per cent.; and in cholecystectomy, 9.99 per cent.; and as the last-named figure comprises the two cases of permanent occlusion of the common bile-duct, the result, if they be excluded, is to enhance greatly the position of cholecystectomy as an operation to be preferred to cholecystotomy.—*Lancet*, Jan. 12, 1889.

A Case of Creolin Poisoning.—DR. CRAMER reports the following: a five year old boy, upon whom he had operated for an inguinal hernia, was ordered applications of gauze saturated with a two per cent. creolin solution, the same antiseptic solution having been used during the operation. Everything went on satisfactorily, no fever set in, the urine continued clear for three days after the operation; in fact, the general condition was excellent. On the evening of the third day, Dr Cramer was called to the patient's bedside to treat, what seemed to the parents, to be scarlet fever. He found the entire body including the face and hands, covered with an exanthem resembling scarlet fever; the little patient appeared extremely restless, complained of great thirst, and of an itching and burning of the skin; temperature was normal, pulse somewhat rapid and small. The urine had a strong carbolic acid odor, as well as the characteristic carbolic acid color.

Dr. Cramer immediately replaced the creolin applications by a three per cent. boric acid solution and administered internally large quantities of seltzer water in order to facilitate the elimination of the creolin through the kidneys. The exanthem lasted until the following morning when it disappeared; but the urine remained dark until the following evening. The boy made a complete recovery.—*Therap. Monatshefte.*

Action of Phenacetin and Sulphonal.—DR. ADOLPHUS OTT, of Prague, in a recent number of the *Prager med. Wochenschrift*, gives some further details as to the effect of phenacetin and sulphonal. With regard to phenacetin as an antipyretic, Professor Ott's experience agreed with that of other investigators. With respect to the drug as an antineuralgic, Professor Ott states that there was hardly any neuralgia, either reflex or peripheral in origin, which could not be influenced by phenacetin. It was only in diseases of the central nervous system, in affections of the brain and the spinal cord that the drug failed in most cases to produce any effect. The best results with phenacetin were obtained in hemicrania and occipital neuralgia. In pure neuralgia of the fifth nerve the effect was only temporary; in one case of severe sciatica, the medicament was useless. In Professor Ott's hands sulphonal proved to be a very good hypnotic. In most cases, tranquil and prolonged sleep supervened after the administration of from one to two grammes. Ott also relates the following interesting observations. On one occasion he had under his care a case of hypochondriasis with arthritic disposition and temporary arhythmia of the heart. The patient, who was accustomed to the injection of morphine, slept well after the administration of two grammes of sulphonal, and the arhythmia always ceased a few minutes after the administration. In another case, however—that of an hysterical girl, aged twenty-nine, who was also accustomed to morphine—no effect could be obtained even with a dose of three grammes. This last observation agreed with Oesterreicher's statement that sulphonal had no effect during abstinence from morphine. It also failed in one case of sciatic neuralgia. The drug was very well borne; no bad after-effects were observed except a sensation of weariness on awaking. In one case of severe chronic catarrh of the stomach combined with nervous irritability and sleeplessness, in which three grammes of sulphonal were given, vomiting and fainting fits occurred. —*British Med. Journal*, Jan. 12, 1889.

For Hysterical Vomiting.—DR. EWALD recommends for this affection the following prescription, of which from ten to fifteen drops are to be taken hourly:

℞.—Hydrochlorate of morphia	. .	3 grs.
Hydrochlorate of cocaine	. .	5 grs.
Tincture of belladonna	. .	75 minims.
Cherry-laurel water	. . .	℥vjss.

—*Revue de Thérapeutique*, Jan. 15, 1889.

A Sulphonal Exanthem.—DR. SCHOTTEN, of Cassel, reports the case of a delicate, nervous woman, forty-five years of age, suffering from chronic myelitis, who for one year had regularly taken chloral on retiring. On the night of August 29th, this patient was given thirty grains of sulphonal; it did not produce sleep, but rather a sense of extreme fatigue. The following evening thirty grains more were administered, with the same effects. On the third evening forty-five grains were administered. This was followed by a prolonged sleep, but on awaking the patient complained of a peculiar feeling of extreme fatigue, manifested by great inclination to sleep, hanging of the head, and difficult motion of the tongue; besides this she complained of headache, of bitter taste, and of loss of appetite. This condition lasted four days, after which time an exanthem made its appearance, beginning on the head and gradually extending over the entire body, resembling in form and color the eruption of measles. The body was hot; the skin had a burning sensation; the mucous membranes were not affected. With the appearance of the eruption, the symptoms of fatigue, etc., gradually disappeared. The exanthem lasted two days, after which it slowly disappeared, leaving traces which were yet noticeable on the fourteenth day.

A sister of this patient was similarly affected after taking antipyrin.—*Wiener med. Presse*, No. 52.

Poisoning by Hydrate of Amylene.—DR. DIETZ (*Deutsche med. Zeitg.*, 1888, No. 24) reports the following: A mixture containing hydrate of amylene was prepared for occasional administration to the patients of a clinic in Leipzig in order to procure sleep. Directions were given to shake the bottle before pouring out the dose. On one occasion the bottle was allowed to stand for a few moments after having been shaken, and then four separate doses for four patients were administered. Amylene hy-

drate being of light specific gravity floats on water, the result being that the dose under these conditions was greatly increased. The symptoms produced in all four of the patients who took the drug were those of acute poisoning by alcohol—prolonged sleep, paralysis of the extremities, abolition of tactile sensibility and of the reflexes, dilatation of the pupils with feeble reaction to light, superficial, irregular respiration, and small, slow pulse. Hypodermatic injections of camphor was the treatment adopted, all the four patients recovering.—*Medical Chronicle*, January, 1889.

Treatment of Eczema.—DR. VEIEL, of Cannstatt (*Med. Corr.-Blatt d. Württ. ärztl. Landesver*, August Heft), writes upon this subject as follows: When treating an eczema, distinction must be made between the acute and chronic form. In the acute form no internal treatment is required, while in the chronic form, arsenic internally, and proper remedial measures externally, are essential. When chlorosis is present, one should administer iron one hour before meals, and arsenic one hour after the same. Scrofulous eczema of children is best treated with cod-liver oil and an appropriate diet combined, if the itching is very annoying, with the internal administration of chloral and bromide of potassium.

In the acute variety, anything that might possibly irritate the skin must be avoided. Children who cannot very well do without their daily bath, should have some slimy substance added to the same. Soap in any form or shape must be avoided. To allay the burning and itching of an acute and dry eczema, Unna recommends the following:

℞.—Oxide of zinc } Gelatine }	. . . . .	āā ʒiv.
Glycerine	. . . . .	ʒviss.
Water	. . . . .	ʒiss.—M.

Heat for a few moments, and apply with a camel's-hair brush.

In moist eczema, the affected parts should be thoroughly washed once daily, then dried, and some flour or starch applied. In cases in which this proves of no avail, the author makes use of a pillow filled with powdered starch; the effect is a cooling one, but requires frequent changing. Where the itching is severe, and the starch alone does not give relief, the parts should be powdered with starch to which two per cent. of camphor has been added. Should this still not alleviate the irritation, the parts should be washed with the following:

℞.—Solution of acetate of aluminum	.	ʒijss.
Water	. . . . .	ʒiij.
Borax	. . . . .	55 grains.
Salicylic acid	. . . .	5 grains.
Water	. . . . .	ʒvss.
Glycerine	. . . . .	ʒj.—M.

In the wide-spreading and moist eczema, salves and pastes are of service. Thus, if the eruption has become dry and squamous, a five per cent. tannin salve should be applied. In chronic eczemas the crusts and scales should be detached by bathing, or by applying soft-soap or oil; the addition of one to two per cent. of ichthyol to any of the foregoing will greatly assist their action. If, in spite of this, the scaling should still continue, Lassar's paste, or tar in alcohol, should be applied:

℞.—Liquid tar	. . . . .	1 part.
Alcohol	. . . . .	3 parts.

This formula is not to be applied to any hairy portion of the body, as it might induce a general sycosis. Should even this last-named remedy prove ineffective, then pyrogallic acid and chrysarobin (in a two to ten per cent. salve) should be tried.—*Therapeutische Monatshefte*, January, 1889.

Some Indications for Pleurotomy.—DR. CARDARELLI (*Il Progresso et La Rasegna di Scien. Med.*, October, 1888) is of the opinion that before performing a pleurotomy, one should first be certain of the existence of the pleuritic exudation, as well as of the quality of the same. To determine this, an exploratory puncture should be made. This done, four conditions remain in which recourse to thoracocentesis is essential: 1st. The presence of an excessive quantity of liquid in the pleura threatening asphyxia. 2d. When the pleural cavity is completely filled, but the patient does not suffer. 3d. When the liquid is purulent, but the patient's condition nevertheless satisfactory. 4th. When there is hydropneumothorax with heart and respiratory trouble due to compression of the vena cava from the pleural exudation.

Two conditions yet remain in which intervention would be justifiable: 1st. In a pleurisy which has been cured, but where a small quantity of liquid still remains. 2d. In an acute pleurisy with high fever, great pain, and rapid formation of the exudation.

In these two last-named conditions the author never hesitates to perform pleurotomy. If a fistula remains, he performs Estlander's operation, but in the majority of cases this even has been found unnecessary.—*L'Union Médicale*, December 27, 1888.

Transfusion in Carbonic-oxide Poisoning.—A workman who had inhaled the vapor of burning coals was taken to the Charite lately. All efforts to restore consciousness having failed, Professor Leyden ordered the injection of two hundred and fifty cubic centimetres of blood, taken from another patient, into one of the veins of the right arm. The patient showed signs of life five hours after the transfusion, then slept for about ten hours, and awoke in excellent spirits. His further recovery was rapid, and he is now quite well.—*Lancet*, January 5, 1889.

Creolin in Ophthalmology.—DR. O. PURTSCHER, of Klagenfurt, gives in the *Centralbl. f. pr. Augenheilk.* his results obtained with creolin in the treatment of diseases of the eye. A one per cent. solution dropped on the conjunctiva of a normal eye produces a sensation of severe burning, which results in the eyelids being closely pressed together. This, however, is only momentary, the lids are soon reopened and large tears flow forth. After three or four minutes the irritation will have subsided entirely, save for a slight conjunctival irritation, which also soon passes off. Hence the author recommends the use of cocaine before the application of creolin.

1st. In simple conjunctivitis, the results, as a rule, were good, especially in congestive catarrh, and in those forms complicated with inflammation of the corneal margin.

2d. In conjunctivitis phlyctenulosa, the combined results of creolin with cocaine were admirable, especially in photophobia and scrofulous blepharospasmus.

3d. Success was most marked in the papillary form of trachoma, the author having never seen such marked resolution of the papillæ from caustic treatment, as from that by creolin.

4th. In blennorrhœa of the lachrymal passages, improvement was observed in many cases.

5th. In all forms of keratitis with ulceration the deep ulcers healed rapidly; also ulcers with small hypopium stood the creolin treatment admirably.

6th. In parenchymatous keratitis the vascular growth was speedily arrested.

The author concludes that creolin is a powerful and valuable antiseptic, and at times to be preferred to the sublimate. It possesses another advantage in being non-poisonous, a fact which has lately been demonstrated by Dr. Eisenberg.—*Centralbl. f. d. ges. Therapie*, January, 1889.

Dropsy of Pregnancy.—DR. WALTER S. A. GRIFFITH, in an article upon this subject, gives the following advice:

"Treat the patient as a case of acute nephritis with dropsy; if there is no distinct improvement within a reasonable period (from two to four weeks), and with less delay if the dropsy increases, empty the uterus. The best method for doing this is by the introduction of a clean bougie, leaving it in until labor is established; a couple of five-grain doses of quinine being given at the end of twenty-four hours, if the uterus needs further stimulation."—*British Med. Journal*, Jan. 12, 1889.

Relative Value of Opium, Morphine, and Codeine in Diabetes Mellitus.—DR. THOMAS R. FRASER, in a paper on this subject, concludes as follows: The evidence seems to indicate that codeine is a less powerful remedy in diabetes than either opium or morphine, and to confirm the view that in its therapeutic value it ranks as a weak or diluted morphine.

The conclusion receives an importance (no doubt a subsidiary one) from the circumstance that codeine is about three times as expensive a substance as morphine. The great demand for it has led to its being manufactured from morphine so largely, that probably one-fourth of the codeine in the market is an artificial substance. When we consider the large doses that are required in diabetes mellitus, and the generally protracted duration of this disease, we are, I think justified in asking for more clear evidence of its superiority over morphine than has as yet been produced.—*British Med. Journal*, Jan. 19, 1889.

Common Salt in Nervous Affections of the Stomach.—DR. BATROM has lately employed common cooking salt in the treatment of migraine, and DR. NOTHNAGEL has recommended the same in the treatment of epilepsy. DR. CERNÉ attributes his success in the treatment of the first affection with this remedy, to an increase of the hydrochloric acid of the gastric juice. In a case of gastralgia and migraine, in which the treatment simply consisted in augmenting the quantity of salt in the food, he noticed that the dyspeptic symptoms and stomachal pains disappeared entirely.—*La Normandie médicale. Revue Thérapeutique*, December 15, 1888.

Atrophic Coryza.—DR. E. J. MOURE (*Journal of Laryngology and Rhinology*, November, 1888), after going very fully into the etiology and pathology of this condition, lays down the following rules for treatment:

A first irrigation of the nostrils made with one or two litres of tepid sulphurous water, to which is added either chlorate of potash, bicarbonate of soda, or borax, in the proportion of a teaspoonful to the litre. This is followed by a second irrigation, consisting of half a litre of tepid water, with the addition of a tablespoonful of the following fluid:

Carbolic acid	20 parts.
Glycerine	100 "
Alcohol at 90°.	50 "
Water	350 "

In order that the patient may not get accustomed to this solution, he substitutes chloral, resorcin, salicylic acid, etc., for the carbolic acid every month. After the douches, the patient ends the treatment by spraying the nostrils or insufflation of fine powder. For spraying he uses:

Carbolic acid	2 parts.
Resorcin (crystals)	3 "
Glycerine	50 "
Water	300 "

or

Camphor	8 parts.
Tinct. iodi.	10 "
Tar	12 "
Alcohol at 90°.	100 "
Water	200 "

To be warmed, and used to moisten the nose for one or two minutes after spraying.

Nasal douches must be carefully directed toward the naso-pharynx, and not up toward the root of the nose. They should be used tepid, and in small stream.

Thymol, Moure does not like, as it is painful, and not certain in its action. Surgical treatment he entirely discards, and Gottstein's tampons he has not found valuable, and very inconvenient.—*Bristol Medico-Chirurgical Journal*, Dec. 1888.

The Treatment of Scarlet Fever by Mercuric Iodide.—DR. PURDY, at a meeting of Leeds and West-Riding Medico-chirurgical Society, referred to Dr. Illingsworth's original paper recommending this treatment and the support given to it by Dr. Clement Dukes, of Rugby. He stated that he had tried it in more than fifty cases, during several epidemics, and was surprised at the results. In spite of the disease in one epidemic being of very severe character, there was only one fatal case, and that was dying when first seen. After giving the drug the temperature fell rapidly, and the patient seemed well in about three days, desquamation being very slight. The average period during which his cases were isolated was only eighteen days. He had seen no cases of infection from convalescents, and there were no lingering sequelæ. In one case a child was ill for five days, the diagnosis being uncertain; then the mother and several children sickened with evident scarlatina, two being very ill, with sloughs in the neck, but all made a good recovery, and were perfectly well before the first child had ceased peeling. The formula used was liq. hydr. perchlor. ℥j, pot. iodid. ℥ss, syrup.

ad ℥viij. Half an ounce to be taken every one, two, or three hours, according to circumstances. Several of his friends had tried this treatment but with less good results, owing, he believed, to the treatment not having been begun early enough, or the doses being insufficient.

MR. HICK said that he had treated in the Leeds Fever Hospital fifty cases with mercuric iodide. Except that there were more cases of nephritis than usual, he could detect no special effect from the use of the drug. He had treated recently three series of eight cases each simultaneously, with iron, mercuric chloride, and a *placebo*, and, on the whole, the latter series did best. He had tried the treatment also in typhus, typhoid, and small-pox, but with no result.—*British Med. Journal*, Jan. 19, 1889.

Suppositories for Cystitis.—

℞.—Iodoform . . . . 1¾ grains.
Extract of hyoscyamus . . 1 grain.
Cocoa-butter . . . . 45 grains.—M.

Make one suppository and introduce high up into the rectum.

The bladder should be washed morning and evening with lukewarm water. If there be any urethral irritation, a pill containing 1¾ grains of terpin should also be taken morning and evening.—*Journal de Médecine*, January 6, 1889.

Strophanthus in Pneumonia with Threatened Heart Failure.—DR. GRATZ (*Centralbl. f. klin. Med.*, No. 45, 1888, and *Münch. med. Wochenschrift*, p. 125, 1888) says, that at the Policlinik, at Erlangen, Dr. Pentzold has employed strophanthus in fifteen cases of severe pneumonia, with symptoms indicating heart failure. He gave the five per cent. tincture, in doses of ten drops, three times daily, and with very satisfactory results, as shown by an improvement in the general condition, slight decrease of the breath and pulse frequency, and especially a decrease in the irregularity of the heart's action. No unpleasant effects from the drug were observed.—*Medical Chronicle*, January, 1889.

Parenchymatous Injections of Distilled Water in the Treatment of Chronic Tumors of the Spleen.—DRS. MURRI and BOARI, being convinced that the benefit derived from arsenic injections in the treatment of tumors of the spleen is not due to the arsenic, but rather to the fluid injected, treated a case of splenic tumor, in a man of twenty, suffering from chronic malaria, by daily injections of one Pravaz-syringeful of distilled water into the parenchyma of the spleen. After two months of this treatment, the organ was considerably reduced in size. Drs. Murri and Boari recommend this treatment highly, which, if carried out carefully, is not followed by evil consequences.—*Wiener med. Presse*, Jan. 13, 1889.

Treatment of Acute Diffuse External Otitis.—DRS. MIOT and BARATOUX prescribe, when the secretion is excessive, the following injections:

℞.—Bicarbonate of sodium . . 5 parts.
Water . . . . . 1000 "

or

℞.—Boric acid . . . . . 1 part.
Water . . . . . 35 parts.

or

℞.—Bichloride of mercury . . . 1 part.
Water . . . . . 200 parts.

—*Revue Gén. de Clinique et de Thérapeutique*, January 16, 1889.

Treatment of Pruritus of the Vulva.—If the affection is an acute one, a lotion containing a small quantity of bromide of potassium or chloral is of use. It is preferable to have the lotion warm rather than cold.

When the acute stage has passed, the following lotion should be applied:

℞.—Water . . . . . 300 parts.
Sublimate . . . . . 1 part.
Alcohol . . . . . q.s.

In chronic cases Dr. Guéneau de Mussy prescribes the following ointment, to be applied to the vulva two or three times daily:

℞.—Glyceride of starch . . . ℥v.
Bromide of potassium . . . 15 grains.
Subnitrate of bismuth . . . 15 "
Calomel . . . . . 6 "
Extract of belladonna . . . 3 "

or

℞.—Infusion of mallow . . . 1000 parts.
Cherry-laurel water . . . 50 "
Borate of sodium . . . 10 "

This lotion to be followed by the application of the following powder:

℞.—Powdered lycopodium . . . 30 parts.
Subnitrate of bismuth . . . 10 "
Belladonna-root . . . . 2 "

The following ointment is also of service:

℞.—Diachylon ointment } . . . equal parts.
Olive oil }

For an eczema of the vulva, Dr. Lusk recommends the following lotion:

℞.—Bicarbonate of sodium . . 8 parts.
Bicarbonate of potassium . . 4 "
Glycerin . . . . . 6 "
Tincture of opium . . . 8 "
Water . . . . . 250 "

Applications of a solution containing cocaine might also be tried:

℞.—Glycerine . . . . . ℥vjss.
Cocaine . . . . . 15 grains.
Chlorhydrate of morphia . . 1¾ "

In very obstinate cases Dr. Martineau employs sublimate baths; made by adding the following solution to a bath:

℞.—Water . . . . . 190 parts.
Sublimate . . . . . 20 "
Alcohol . . . . . q.s.

While these local applications may all be of service, one must not omit constitutional treatment which often relieves indirectly the cause of the pruritus.—*Revue Générale de Clinique et de Thérapeutique*, Jan. 16, 1889.

Decussation of Fibres of Voluntary Movement.—DR. BROWN-SÉQUARD in an exhaustive paper upon this subject reaches the following conclusions:

1st. The fibres of the anterior pyramids which cross and overlap each other at the inferior portion of the bulb, can be the only, or at least the principal, channel for the transmission of voluntary motion.

2d. The protuberance, as supposed by a number of physiologists, must be the principal point of decussation of the fibres which control the voluntary movements of any member.

3d. The decussations of the fibres for voluntary as well as for reflex motion of the limbs are found along the entire length of the cerebro-spinal centre.

4th. It is wrong to assume that paralysis due to unilateral lesions of the bulb or other parts of the encephalum, in man as well as in animals, depends upon the destruction of localized centres or upon groups of fibres serving only for voluntary motions.—*Archives de Physiologie*, January, 1889.

Male Sterility and Gynecology.— DR. FÜRBRINGER, of Berlin, has written some important observations on this subject in the *Deutsche Med. Wochenschrift*, No. 28, 1888. He believes that sterility in the male is far more frequently the cause of barren marriage than is generally believed to be the case. Aspermatismus is associated with complete impotence, but azoöspermia, or absence of spermatozoa in the semen, a condition by no means rare, may exist with perfect potency, and on that account is very easily overlooked. With few exceptions, azoöspermia is caused by obliteration of part of the seminal ducts. This condition is generally caused by double gonorrhœal epididymitis, or inflammation of the vas. After that malady, the chances are, Dr. Fürbringer has calculated, nine to one that azoöspermia will follow. Prognosis appears to be hopeless when the condition in question is not discovered until three or four months after the onset of the local inflammation. The chief importance of the management of the case lies in accurate diagnosis. True aspermatism is traced by Dr. Fürbringer to arrested development of the ejaculatory ducts. He declares that in several cases of sterile marriages under his own observation the unfortunate wife had been sent from physician to physician, or from hospital to hospital, and her cervix divided, or her endometrium scraped, until a glance at the microscope proved that nothing was wanting to insure the blessing of children, excepting spermatozoa. Dr. Fürbringer's observations are worthy of consideration. No doubt the increase of temperance involves the relatively greater frequency of those forms of gonorrhœa where the earlier symptoms are very mild. Hence the first stages may now be as much neglected by patients as they have ever been wont to neglect later stages. The more a case of gonorrhœa is neglected, the greater will be the chance of serious secondary complications.—*British Med. Journal*, Jan. 19, 1889.

Treatment of Typhoid Fever with Naphthol.—DR. GENNARO PETTERUTI gives in the *Giornals internaz delle scienze medische*, No. 10, his results obtained with naphthol in the treatment of typhoid fever. From his observations he concludes that naphthol may be administered in doses up to sixty grains daily. The only unfavorable symptoms observed during its administration were a more or less severe burning sensation felt while urinating, and a dark brown coloring of the urine. This discoloration of the urine begins five hours after the remedy has been taken and lasts throughout the treatment, and is, no doubt, due to the absorption of a certain quantity of naphthol from the intestines, which finds its way into the urine. Diarrhœa was rarely observed.

Not only does naphthol possess an antipyretic action like antipyrin, thallin and other antipyretics, but it also has a direct healing influence upon typhoid fever. In the author's cases a reduction of temperature followed the administration of naphthol, which did not rise again even after the remedy was withheld. The fall in temperature which begins between the second and third day continues till it has reached the normal.

The advantage of naphthol over other antipyretics consists in its being well borne by the intestinal mucous membrane and in being absorbed in small quantities only by the intestinal canal, thus remaining for a longer time in contact with the affected parts.

With children under four years of age, the author began treatment with daily doses of fifteen grains, which was at no time allowed to exceed thirty grains, while adults for the first few days were given four doses of eight grains each, and later on eight doses daily of the same quantity, the interval between each dose being one hour.—*Wiener med. Presse*, January 6, 1889.

Creolin as an Antiseptic.—DR. L. A. STIMSON, at a recent meeting of the New York Surgical Society, showed a sample of pure creolin, and also one of a two per cent. mixture in water. It was a dark, viscid liquid with a tarry odor, insoluble except in alcohol, a two per cent. aqueous mixture appearing as a fine emulsion. He had been much troubled by the fact that secretions from wounds readily underwent decomposition under dressings of sublimate gauze, and had thus been led to try creolin. He had now employed it for two months at the New York and Chambers' Street Hospitals, with very satisfactory results, using ordinary purified gauze wrung out in a two per cent. aqueous mixture. The drug was rarely irritating to the skin. It was not only a good antiseptic, but it also arrested parenchymatous bleeding and hastened cicatrization. When applied to ulcerated cancerous surfaces, it was a powerful deodorizer. Chemically it closely resembled a cheap patented disinfectant, sold under the name of "soluble phenyl," but the latter was of somewhat thinner consistence; creolin contained no carbolic acid.—*New York Medical Journal*, Feb. 2, 1889.

Poisoning with Hydrochloric Acid.—DR. MAURICE LETULLE and HENRY VAQUEZ from numerous observations on persons poisoned with hydrochloric acid, made during life and at post-mortem, reach the following conclusions:

1st. Hydrochloric acid in poisonous quantities produces severe gastritis with embryonic proliferation and extensive cellular necrobiosis.

2d. Experience and clinical observation prove the frequency and danger of penetration of the caustic liquid into the respiratory passages, during the efforts at regurgitation or vomiting which follow the ingestion of the poison.

3d. Hence these efforts at vomiting, should be, if possible, prevented and counteracted by promptly washing out the stomach with appropriate solutions.—*Archives de Physiologie*, January, 1889.

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SATURDAY, FEBRUARY 9, 1889.

PUNCTURE OF THE ABDOMEN FOR EXCESSIVE TYMPANITES.

THAT it is most desirable and expedient to relieve distressing or dangerous tympanites all will agree, but the same unanimity of opinion will not prevail when we come to consider by what means this shall be accomplished. Of surgical methods there are two: the rectal and œsophageal tubes, and puncture or aspriation of the intestines or stomach through the abdominal parietes. These latter procedures have recently been most elaborately set forth and heartily commended in a valuable historical and clinical monograph from the pen of Dr. John W. Ogle, of London. In this work the author has collected from the experience of his hosts of friends and colleagues a vast array of cases and clinical material. Perusing the mass of facts therein contained we find that, as a rule, surgeons are not zealous in advocacy of the measure whilst medical men, including Ogle himself, are almost all pronounced in its favor. We, ourselves, have had small but salutary experience with the operation, and, whilst acknowledging our previous dislike to it upon theoretical principles and hearsay of a few instances in which unfortunate consequences were said to have followed its employment, must, in the absence of larger personal experience, yield to the greater weight of contrary evidence presented by Ogle, and agree that, properly performed in judiciously selected cases, the operation of puncture of the abdomen for tympanites is comparatively safe and expedient. As an euthanasic measure it is always justifiable.

From Ogle's work we cull many of the following facts regarding the range of application and mode of performing the operation. Puncture will effectively relieve distention of the colon and stomach, and some cases of small intestine inflation if the calibre of the latter is greatly enlarged; otherwise tapping the small bowel will usually prove unavailing, because of its numerous kinks and twists. The stomach should only be punctured when obstruction of the œsophagus prevents its relief by the tube. Incurable cases of bowel obstruction are robbed of some of their most distressing symptoms by puncture; whilst cases of curable obstruction are much more apt to be spontaneously reduced after the distended bowel and impeded heart and lungs have been relieved by aspiration of the intestines. Drugs likewise, when before unabsorbed and powerless, will often be taken up and begin to act copiously upon the intestines so soon as distention is relieved.

To perform the operation, the abdomen should first be made technically clean by the use of soap and antiseptics. Then into the most prominent coil of bowel presenting, a trocar is plunged until it enters the lumen, when a rush of gas will take place through it. The trocar should be the very smallest available, and not triangular or spear-pointed, but round, that bloodvessels shall not be wounded and that the intestinal mucous membrane shall most effectively close the opening in the bowel thereby made. The aspirator jar is by no means necessary, for in most cases the gas will be rapidly forced out by the intra-abdominal pressure. When all gas has been discharged that will flow out, a little water is injected through the trocar to cleanse it, and it is then withdrawn by a quick motion; and the minute abdominal wound immediately sealed with such a dressing as iodoform and collodion. If large-sized trocars are employed, there is great danger of fecal extravasation, either at once or when distention recurs. Several or many punctures at various points over the distended bowels may be necessary for entire relief, and repetition of the operation may be required to remove re-accumulations due either to formation of more gas in the colon or to its advent from the small intestine. The puncturing instrument must be thoroughly cleansed between punctures, by boiling, if more than one is required.

According to Ogle's large collection of cases, extravasation after such puncture practically never

occurs nor do adhesions form, subsequent operation becomes more dangerous or unpromising, or other noxious effects follow.

We recall a case which was suffering from impaction of a great number of the bones of pig's feet in the lower colon, in which all purgatives and clysters had refused to act, and the distress and cardiac danger were so great that we felt compelled to insert hypodermatic needles into various points along the course of the immensely distended colon. Gas rushed through these for about fifteen minutes, when the colon had become entirely collapsed. Within a very short time the accumulated purgatives began to act vigorously and the mass of obstructive material was soon dislodged, and passed by rectum. No untoward results followed and the patient was almost immediately cured.

THE SEPARATION OF THE SICK FROM THE INDIGENT POOR.

ACTING in accordance with the principles which have governed the growth and development of the great hospitals of the world, to which THE NEWS drew attention in its issue of January 12th, the authorities of Philadelphia are about to remove their indigent poor, not hospital patients, to a suitable almshouse, thus affording the city hospital much needed additional space.

The advantages of applying the funds of a city appropriated for the care of the sick to them only, and reserving for chronically disabled pensioners a style of maintenance adapted to their condition, have been demonstrated in European cities and in some American institutions. From the standpoint of medical science such a policy results in placing the largest available clinical material under the observation of the profession, in securing for hospital patients the best professional skill, and in advancing the cause of medical education.

The Philadelphia Hospital is probably the oldest on this continent, and affords a large field for clinical study. It is a curious fact that many of the oldest hospitals of the world exhibit the lowest death-rate, and are the scene of the greatest achievements of medicine and surgery. With the present knowledge regarding infective agents and the means for destroying them, large hospitals are as safe as the isolated dwelling, and when the systematic care and skilled treatment which they afford are considered they are more favorable fields for medical science than the dwelling.

American cities should adopt universally the principle of discrimination in the expenditure of public funds for the indigent; the sick should receive the most skilful and scientific treatment available, and afford opportunities for clinical study; the chronic pensioner should be maintained in the neighborhood of a city, and his labor utilized if possible. In this manner the public hospitals of the country will best further the interests of the State and the profession.

DR. HOLMES'S GIFT.

WE mentioned in last week's issue of THE MEDICAL NEWS the fact that Dr. Oliver Wendell Holmes had given his medical library to the Boston Medical Library Association. The oldest book of this collection of a lifetime was written in 1490, and the latest in 1887. In parting with these old companions, Dr. Holmes does so with a grace that marks everything that he puts his hand to.

"These books," says he, "are dear to me; a twig from some one of my nerves runs to every one of them, and they mark the progress of my study and the stepping-stones of my professional life. If any of them can be to others as they have been to me, I am willing to part with them, even if they are such old and beloved comrades." Bearing in mind that these are medical books chiefly of which Dr. Holmes is speaking, his warm praises become an encouragement to publishers to put forth the best, and only the best, books on the healing art.

Another reflection, a little tinged with sadness, is in the likeness in this act to that of a tired workman putting away his tools. Dr. Holmes is rapidly approaching his eightieth birthday, and these books of his are no longer needed in the period of retirement for which he is preparing to spend the remnant of his days.

While it cannot be said that the best of Dr. Holmes's intellect has been given to medicine, he has always been so loyal to her interests and so prompt in her support, that she has no feeling of jealousy to gratify because of the immortal honors he has won in other fields, and we believe that no class of readers of Dr. Holmes's works of wit and fiction has been better fitted for the enjoyment of them than have been his foster-brethren of the healing guild. Long may his years be in the land, and full of honor and free from all physical ill.

LAST Tuesday, the Trustees of the University of Pennsylvania filled the vacant chairs in the Medical

Department by the election of Dr. J. William White to the Professorship of Clinical Surgery, and Dr. John Guitéras to that of Pathology and Morbid Anatomy.

Dr. Guitéras is a native of Cuba, where he received his preliminary education, graduating from the Medical School of the University, in 1873. In 1879 he was appointed by the President of the United States a member of the Havana Yellow Fever Commission, and took charge of the investigations in morbid anatomy. In 1880 he was appointed to the Marine-Hospital Service. He was ordered by the Government to investigate epidemics of yellow fever in Vera Cruz, 1883; Key West, 1887; and Florida, 1888. Dr. Guitéras has lectured in various medical colleges, and has made valuable contributions to medical science. In order to accept the Chair of Pathology, he will resign his commission as Passed Assistant-Surgeon of the United States Marine-Hospital Service.

Dr. White was born in Philadelphia, and graduated in Medicine at the University in 1871. He is surgeon to the Philadelphia, German, and the University Hospitals, and has been a frequent contributor to the medical journals. He was the first Director of Physical Education in the University, and was largely instrumental in placing this department on a scientific foundation. Dr. White was also prominent in the work of introducing training schools for nurses in the University and Philadelphia Hospitals.

The Trustees of the Johns Hopkins Hospital have decided to formally open the Hospital on the first of May, and they have confided its organization to President Gilman, of the University. We understand that for one year, at least, President Gilman will reside in the Hospital, and exercise a close personal supervision over its executive management.

Great credit is due to the physicians who resisted pressure from high sources and declined to certify falsely as to the cause of death of the Archduke Rudolph. Professor Hoffmann, in addressing the University students last Monday, said that whatever rumors might be circulated, and whatever assertions might be made, he could declare, with a clear conscience, that he and his colleagues, in their report of the autopsy on the Crown Prince, signed nothing but what they could answer for with their honor.

REVIEWS.

Clinical Lectures on Certain Diseases of the Nervous System. By J. M. Charcot, M.D. Detroit: George S. Davis, 1889.

With the exception of Claude Bernard and Brown-Séquard, the name of Charcot shines, and has shone for years, par excellence, as the best exponent of medical thought in France. Even yet, in his early old age, this greatest of neurologists, still gives, and we hope will continue to give, practical lessons to the profession, which are generally far more wide-reaching in their bearings than is often thought. As a consequence, every one is glad to hail a translation of Charcot's lectures or books, and always finds on their pages much food for thought.

In this little book the subjects of spiritism (*sic*) and hysteria, and the treatment of the latter by isolation, choreiform movements and tremblings, and rhythmical chorea, are carefully considered in the first three chapters; while in Chapters IV., V., VI., VII., and VIII, the study of muscular atrophy resulting from articular lesions, contractions of traumatic origin, painless tic of the face, muscular atrophy from articular rheumatism, and hysteria in the male are likewise brought vividly before the reader. The book is made the more interesting by the insertion of a short biography of Charcot by the translator, Dr. Hurd, and this alone is worth the cost of the volume, showing, as it does, not only the character of the man and the breadth of his thought and labors, but, in addition, the fact that by diligence and thought he has reached a plane of professional favor and esteem on which few other medical men can stand, and which may well serve as an example to those who value the goodwill and admiration of their fellows.

Pulmonary Consumption Considered as a Neurosis. By Thomas J. Mays, M.D., Professor of Diseases of the Chest in the Philadelphia Polyclinic. Pamphlet, 8vo. pp. 63. Detroit: George S. Davis, 1888.

This brochure consists of two lectures, which were delivered at the Philadelphia Polyclinic in the course of 1888–89. The author holds that in consumption the lung affection is only "a special manifestation of the disease which invades the whole body; and that all its diversified symptoms, such as fatigue and exhaustion, anorexia, dyspepsia, wasting, dyspnœa, sweating, diarrhœa, hæmoptysis, intercostal tenderness, hoarseness, aphonia, and œdema, are not the consequences of pulmonary disease, as is commonly believed, but in all probability find a common bond of union in a general disorder of the peripheral nervous system.

"That it is possible for a neurosis of the vagus to give rise to all the lesions which are generally found in phthisical lungs, is not beyond the bounds of legitimate reasoning, although it may not be demonstrable by experiment. For it has already been shown, as in the case of herpes zoster, that disturbed innervation is capable of leading to a catarrhal inflammation of the skin, and if a herpes or a catarrhal inflammation can be produced in the skin through nervous influence, it is also within the limits of logic to hold that the same may occur in a mucous membrane,—the morphological counterpart of the skin. And, after the catarrhal con-

dition is once permanently established in the bronchial tubes and in the air-cells, all the other pathological changes which are characteristic of phthisis follow as a necessary consequence. A catarrhal process in these surfaces implies a proliferation of epithelial cells, and, on account of the sacculated form of the alveoli, the catarrhal material, unlike on the free skin surface, where it may be removed as soon as it forms, is very liable to accumulate in and pack these structures and form small nodules, which are commonly, but erroneously, called tubercles. These smaller nodules coalesce and form larger masses, which finally impinge on the surrounding circulation, and thus cut off their own nutritive supply. After this takes place they undergo a cheesy degeneration, soften, communicate with a bronchus, are expelled, and leave a cavity behind."

As to treatment, the author holds that rest, absolute or an approach to it, is one of the most vital factors in the successful treatment of serious nervous disease, and he believes that "the prevailing opinions that consumptives must have plenty of exercise and fresh air are two of the greatest stumbling-blocks in the successful management of this disease."

OSTEOTOMY FOR ANTERIOR CURVATURES OF THE LEG. By DE FOREST WILLARD, M.D., Lecturer on Orthopædic Surgery, University of Pennsylvania. Pamphlet, 8vo. pp. 20.

THIS paper was read before the American Orthopædic Association at its meeting last autumn. Its author's views are summarized in the following conclusions:

1. Anterior tibial curves during the soft and springy stages may be corrected by manual rectification and the use of apparatus.

2. Braces are useless after hardening has occurred.

3. Manual fracture is the best and safest remedial operation in young children.

4. Instrumental fracture, or osteoclasis, is not as safe or effective as osteotomy.

5. Aseptic simple osteotomy for all moderate degrees of curve, and cuneiform section for very severe grades, give almost uniformly good and speedy results, without suppuration. Subcutaneous section by the saw is also a reliable operation.

6. Plaster of Paris is the simplest and most effective material for securing accurate position and maintaining absolute fixation. By its use the delay and injury incident to suturing the ends of the bones are avoided.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OBSTETRICS AND GYNECOLOGY.

JOSEPH E. JANVRIN, M.D., CHAIRMAN.

Stated Meeting, January 24, 1889.

DR. H. J. BOLDT read a paper on

THE TREATMENT OF SUPPURATIVE DISEASE OF THE UTERINE APPENDAGES.

At the present time, he said, there was much difference of opinion in regard to the justifiability of surgical interference in diseases traced to the uterine appendages, and while some gynecologists had gone to extremes in operating, others had gone to extremes in the opposite direction, instead of keeping the medium and selecting cases for operation with great care. Cases of disease of the uterine annexa might be roughly divided into three groups: 1. Those in which an operation is altogether unjustifiable. 2. Those in which it is the wiser course to keep the patient under treatment for a time, in order to observe what benefit may thus be derived, before deciding finally as to the advisability of operating; and 3. Those in which delay is not only unadvisable, but actually fraught with danger.

His special object was to argue the necessity of abdominal surgery, as a rule, in the disease of the Fallopian tubes known as pyosalpinx; excluding certain exceptional cases to be noted hereafter. This plea for operative interference was based upon a number of cases coming under his own observation, and the histories of which he then proceeded to narrate.

CASE I.—April 15, 1887. Theodora K., thirty-six years of age. Married sixteen years; one child, born fourteen years ago. Labor was instrumental, and followed by metritis and peritonitis. Her illness dates back to this confinement. During the last five years, her pains have increased, and she has had a number of attacks of local peritonitis. Five years ago she was infected by her husband with syphilis, from the secondary effects of which she is still suffering; and the increase of the pains thus corresponds with the syphilitic poisoning. Having described the symptoms and the physical signs, he said that the diagnosis made was double salpingo-oöphoritis syphilitica with endometritis, and an operation was advised if improvement did not result from a few months' treatment. On May 15th a fresh attack of pelvic peritonitis occurred as the result of violent physical exertion. On May 20th he was summoned to the patient, who was suffering intense pain, and found her then with a general peritonitis. At this time the tubes, which could formerly be distinctly mapped out by the fingers, had lost their contour, and in the position occupied by them a general fulness was found; while the examination caused excessive pain. It was therefore apparent that the tubes, which had been distended with pus, had ruptured, and a general peritonitis had thus been excited. The patient was removed to the hospital on the same day, but, unfortunately, he did not make up his mind to operate until the following afternoon, when an experienced colleague concurred in the diagnosis and the course to be pursued. At 9 P.M., he performed abdominal section, when the diagnosis made was confirmed. The abdomen was thoroughly washed out, and a Sims's drainage tube placed behind the uterus, washings being made afterward at frequent intervals. For thirty-six hours the patient did well, but she then began to sink, and sixty hours after the operation died in collapse.

CASE II.—Kate L., aged twenty-nine, single, nonpregnant, seen in consultation May 25, 1887. She gave the history common to cases of salpingitis previous to her present illness. On April 21st she was suddenly seized with severe pain in the lower part of the abdomen, which gradually increased in intensity for some time, and then began to subside. On May 23d she again became worse, and developed a high temperature. On examination it

was found that she had general peritonitis and was much emaciated. The seat of the most intense pain was to the right of the uterus, where a fulness with slight fluctuation was appreciable. The diagnosis was septic peritonitis from the rupture of the right Fallopian tube, in which pyo-salpingitis had previously existed; and this was confirmed when laparotomy was performed at the hospital on the following day. The abdominal cavity was thoroughly cleansed of pus, but the hemorrhage was so profuse from the points where the adhesions were separated that no attempt was made to introduce a drainage-tube; and the patient's condition was so poor that time could not be spared to look up and secure all the bleeding points. Instead, that part of the pelvis from which the hemorrhage came was tamponed with iodoform gauze. The peritoneum was separately closed, as in all Dr. Boldt's abdominal sections, with the exception of the lower angle where the tube protrudes, when the latter is used. The patient rallied remarkably well, the iodoform gauze tampon acting admirably as a drain and as a hæmostatic. Thirty-six hours afterward it was removed, and a hard-rubber double current drainage tube, through which the abdominal cavity was washed out, inserted in its place. Later she began to sink and on the fifth day she died. The autopsy showed diffuse nephritis, but the pelvis was perfectly clean, and there was found to be a decided diminution of the peritonitis.

CASE III. was that of a young woman twenty-three years of age, who had been married eighteen months, and had a child six months before she came under observation. The diagnosis was endometritis and double pyosalpinx of puerperal origin. Both tubes were felt enlarged, and the right ovary was about the size of an English walnut. The uterus was displaced anteriorly and was very tender, and the cervix was lacerated bilaterally. On June 12th he was suddenly summoned to see the patient, who had been seized early in the morning with a very severe attack of abdominal pain, accompanied with vomiting. She was suffering from slight shock and there was marked tenderness over the entire abdomen, but no evidence of intense general peritonitis. The enlarged tube could be no longer felt on the right side, and the diagnosis of rupture of a pyosalpinx was made. Within two hours after first seeing the patient he opened the abdomen, and the diagnosis was confirmed. Peritonitis had already begun, but after thoroughly cleansing the abdominal cavity he closed the wound, using no drainage; and the patient made an uninterrupted recovery.

CASE IV. was also that of a young woman with double pyosalpinx of puerperal origin. Operation was advised but the patient did not consent. On July 27th she was attacked with intense abdominal pain and tympanites, and the diagnosis of commencing peritonitis from rupture of one or both tubes was made. Abdominal section was promptly performed, the cavity thoroughly cleansed, and the wound closed. Although the peritonitis had made considerable progress for such a short time, the patient made a complete and rapid recovery. In this instance one tube had ruptured, causing the attack, and the other became ruptured during removal.

In commenting on these cases Dr. Boldt expressed great regret at not having operated earlier on the first case, and stated that twice within the past two years he had seen cases on the post-mortem table which had died of purulent peritonitis directly attributed to a ruptured pyosalpinx. These cases he also related: The first came to his clinic in March of last year, and he at that time advised opening of the abdomen and removal of the uterine appendages. On June 30th he was summoned to the patient's house, where he found her suffering from general peritonitis. The immediate operation was declined, and she died July 2d. In the second case the patient also developed general peritonitis, but recovered without an operation. His prognosis was guarded, however, as the tubes continued to enlarge after this. Subsequently she had a very sudden and sharp attack of pain in the right inguinal region, and when he reached the bedside he found her in agony, screaming with pain, cyanotic, and with a high temperature and feeble, frequent pulse. The diagnosis of rupture of the right tube was made, but as the patient rapidly improved under opiate treatment while the preparations were being made to operate, and it, therefore, seemed possible that an error had been made in diagnosis, it was decided, on consultation, to defer the operation at least to daylight. In two hours, however, she began to sink, and by morning operation was entirely out of the question, despite the free use of stimulants.

His conclusion was, that abdominal section cannot be too strongly urged in every case of active pyosalpingitis, from whatever cause it may arise, except in the rare instances where the uterine extremity of the tube is patent, so that pus can be squeezed out of the latter into the uterus; and excepting also those cases where the tubal disease is complicated with another disease which itself will probably destroy life in a short time.

As to the question of diagnosis, he thought that a careful observer, experienced in this line of work, would not often make a mistake. The conditions from which it was usually necessary to differentiate were hydro- and hæmato-salpinx; but if the tubes were much distended the question of ovarian or par-ovarian cyst had also to be taken into consideration. The history of the case was of the greatest importance in determining its true nature. While many gynecologists considered it unjustifiable to operate for hydro- or hæmato-salpinx, it was unfortunately an impossibility always to make the positive diagnosis before opening the abdomen; and, furthermore, he still adhered to the opinion, expressed by him two or three years ago, that even cases of hydro-salpinx should be operated on if they give rise to serious morbid symptoms which cannot be alleviated by other treatment, because the simple and inert liquid may take on purulent changes as the result of an inflammatory condition set up in the walls of the tube, or the extension of endometritis. It was also a fact that, in consequence of their openings being blocked, the tubes might become distended to such an extent as to cause rupture with the possibility of fatal peritonitis resulting. He desired to lay special stress on the point that when we have reason to suspect active suppurative disease we should open the abdomen, from which, even if our diagnosis should prove wrong, not much harm would result to the patient.

If the diagnosis of pyosalpinx was correct, immense advantage was conferred upon the woman, since, in the first place, the operation, as a rule, removed the pain incident to the condition, and changed her from an invalid to a healthy individual; and, secondly, removed the danger of rupture of the tube and fatal peritonitis.

It was true that at the meeting of the American Gynecological Society in 1887 a prominent German operator had said that his mortality from salpingo-oöphorectomies was over twelve per cent., and that in his last published statistics this percentage was even somewhat higher; but it was to be borne in mind that the cases selected by him for operation were extremely unfavorable, since he waited very long and exhausted all other means of treatment before resorting to it. It was against this very long waiting that he would protest. Why let a patient suffer so long when from the history and the physical examination we are satisfied ourselves that she is suffering from a condition not amenable to non-surgical methods of treatment?

If in any case when pyosalpinx was supposed to exist, and laparotomy having been performed, it was found that hydro- or hæmato-salpinx was present, Dr. Boldt was very positive that the tube should be removed, notwithstanding the fact that it did not at the time of the operation contain pus, provided it was at some point firmly excluded from the effects of adhesive inflammation. In some comments on the second case included in the paper he said that, admitting that home care among the poorer classes was very much inferior to hospital nursing, he should not again expose a patient suffering from general peritonitis to the danger of removal to a hospital (which in this instance was four miles from the woman's residence), but take his chances of watching the case at home. The patient's condition being so very low, it was of paramount importance to operate as quickly and with the loss of as little blood as possible, and in this case the iodoform gauze, advocated principally in Germany, was used with much success; the many bleeding points and the broken-down condition of the tissues rendering it impossible to apply successfully ligatures or the hæmostatic process. Since that case he had several times had occasion to observe the efficiency of the gauze packing in profuse intra-abdominal hemorrhage in which every other allowable means known to him would have been a positive failure. In this instance the peritoneal cavity after the removal of the gauze tampon was dry and free from odor, and he now believed that if he had then finally closed the wound, not introducing any drainage-tube at all, the patient would have recovered.

In conclusion, Dr. Boldt said that no one could be more opposed than he to the indiscriminate removal of the appendages, which had unnecessarily unsexed so many young women. Even should pyosalpinx exist, if the distention of the tube was slight and gave rise to no morbid symptoms it was the wiser plan to wait, in the hope that the pus would become inert by undergoing cheesy degeneration. In other cases, where the question of operation arose, massage employed after the method of Brandt was an excellent means to diagnosticate the patency of the tube, and should a communication exist between the tube and uterus, it constituted, if properly employed, a very valuable adjunct in the treatment. It might be, however, a very dangerous procedure in this disease in the hands of an inexperienced manipulator.

Dr. Carl Zeiss, the celebrated optician, founder and owner of the great microscope factory in Jena, has just died at the age of seventy-three.

CORRESPONDENCE.

A SUCCESSFUL CASE OF PARTIAL LARYNGECTOMY FOR CANCER.

To the Editor of THE MEDICAL NEWS,

SIR: In writing you little more than a year ago, from Berlin, I described at some length an operation for partial extirpation of the larynx, performed by Hahn at the Frederickshain Hospital. The patient was a man, thirty-seven years old, a Mr. K., from Danzig, who had for some time been suffering with an ugly growth on the left vocal cord. He had consulted my friend, the well-known Dr. Tomwaldt, of Danzig, who, recognizing the nature of the growth, had sent him to Berlin. Having seen the operation itself, and having visited the gentleman several times subsequently, I was interested to know some of the particulars about *his death*, having read of it in several papers; but more especially had I noted it, since in Mackenzie's brochure, page 243, case 130, this patient was reported as *Dead—four weeks after operation.*

I spoke to Dr. Tomwaldt about the case, and expressed my regret, in reply to which he informed me, much to my surprise, that the man was not only *not dead*, but alive and perfectly well, and at the present speaking in Danzig.

The next day, through the courtesy of Dr. Tomwaldt and the gentleman himself, I had the pleasure of making a thorough examination of his throat, which is in good condition, with no sign of further trouble. Moreover, his voice is very fair, though, of course, hoarse.

Hahn removed, in this case, the entire left half of the larynx, the operation being very thorough, for the growth had been in a short time very active. The operation was performed November 9, 1887, and the patient has every prospect of a long life. Now at the time of the operation, the growth was infinitely larger than that in the throat of the Crown Prince, when Mackenzie operated in May, 1888.

That such a gross error as this should have been made in Mackenzie's book, is a matter of surprise.

Respectfully yours,

F. DONALDSON, JR.

DANZIG, POMERANIA, January 15, 1889.

THE WEST VIRGINIA MEDICAL ACT.

To the Editor of THE MEDICAL NEWS,

SIR: In your editorial (January 26th) on "States may Regulate the Practice of Medicine," based on the decision of the U. S. Supreme Court, in the case of F. M. Dent, you make a verbal error calculated to mislead.

In the section of our law classifying those permitted to practise, the second class were "those who have practised medicine in this State *continuously* for a period of ten years prior to the eighth day of March, 1881," not simply been in the practice of medicine *ten years* in the State, as *you* state it.

This class included some highly qualified medical men of advanced age, who in former years could not avail themselves of a collegiate education; as well as a large number of very poorly qualified men, who took up the practice of medicine without any qualifications whatever of study.

This class is rapidly being eliminated from the ranks of the profession as time goes on, by death and removal. So now virtually we have but two classes: First, "all who are graduates of a reputable medical school in the school of medicine to which the person desiring to practise belongs." Second, those who, not being such graduates, have passed examination before one of the State Examining Boards.

Gradually the requirements in these examinations have been raised, until now, I believe, a percentage of 85 of correct answers is necessary to pass the examiners; and the first course student finds it easier to go on and complete his course at college, than to obtain a certificate from the State Board.

Under the action of the law the status of the profession has been raised; our State virtually rid of the presence of itinerant quacks; and by an amendment passed in March, 1887, rid to a great extent of the itinerant vendors of medicines; such as delight to attend the presence of any gathering of people, as on Court days, etc.; also the bands of Indians under control of white vendors, etc., who, a few years ago, were visiting our towns, prescribing and evading the law, by professing to be simply selling their wares.

Perhaps some day we will advance a step farther and come into line with the mother State, Virginia, and require all to pass a State examination. Our State Board "may refuse certificates to individuals guilty of malpractice or dishonorable conduct, and may revoke certificates for like causes;" but cannot revoke certificates for unprofessional conduct, as resorted to *by charlatans* and *ignorant impostors*. We can only reach the travelling charlatan by our tax of fifty dollars per month, or fraction of a month, that he desires to practise in a county. If he becomes a resident physician, no matter how brazen his charlatanry, how *audacious* his lying advertisements, the State Board cannot reach him, as our legislature refused two years ago to allow unprofessional conduct as a cause of revoking a certificate. Perhaps some day we may arrive at that.

Even in Illinois the authorities have had trouble in enforcing that provision.

Respectfully,

W. H. SHARP, M.D.

VOLCANO, WOOD CO., WEST VIRGINIA,
February 1, 1889.

NEWS ITEMS.

A Medical Examiners' Bill.—The following bill has been introduced into the State Legislature of Pennsylvania:

An act to establish a State board of medical examiners and licensers, and to define the powers and duties of such board.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same: That within six months after the passage of this Act, the Governor shall appoint a State Board of Medical Examiners and Licensers, consisting of nine members, three of whom shall serve for one year, three for two years, and three for three years, and hereafter he shall each year appoint three members to serve for three years in place of those whose terms then expire. They shall be graduates of some legally chartered college or university having the power to confer medical degrees, who shall have practised medicine or surgery for a period not less than five years, but none of whom shall be members of the faculty or staff of any medical college or university. Provided, that in the appointment of the said Board, the members shall be chosen from lists of names, each list containing the names of not less than eighteen registered physicians, submitted by the State Medical Societies of the Commonwealth of Pennsylvania. In default of the submission of any such lists, the appointments shall be made by the Governor at his discretion from among the registered physicians of the Commonwealth having the qualifications specified in this section. Each member of the said Board shall receive a certificate of appointment from the Governor, and shall file the same within thirty days with the Prothonotary of the Court of Common Pleas of the county in which said member is registered under existing law.

Section 2. The said Board shall be known by the name and style of THE STATE BOARD OF MEDICAL EXAMINERS AND LICENSERS OF THE COMMONWEALTH OF PENNSYLVANIA, and shall have a common seal and may make and adopt all necessary rules, regulations, and by-laws not inconsistent with the Constitution and laws of this Commonwealth, or of the United States, and shall have power to locate and maintain an office for the transaction of its business. Five members of the said Board shall constitute a quorum.

Section 3. Upon the organization of the said Board, it shall be determined by lot which three members shall serve for a term of one year, which three for a term of two years, and which three for a term of three years. Every appointment to fill a vacancy or vacancies in the said Board shall be for the unexpired term, and the said vacancy or vacancies shall be filled by the Governor within sixty days after notification of the same, in accordance with the provisions of Section 11 of this Act; and he shall have power to remove any member of said Board for criminal, scandalous, or dishonorable conduct.

Section 4. The said Board shall organize at Harrisburg upon the first Tuesday of January, A. D. 1890, and shall elect from its own number a President and a Secretary who shall also act as Treasurer, both of whom shall hold their offices for the term of one year, or until their successors are chosen.

Section 5. The members of the said Board shall each receive a salary not exceeding three hundred dollars per annum, to be paid out of the fees for examination. The Secretary and Treasurer shall receive an additional salary, to be fixed by the Board, and shall file with the President of the Board a bond in the sum of one thousand dollars for the faithful performance of his duties. The necessary expenses of the said Board shall also be paid out of the fees, except as provided in Section 12 of this Act, and any balance remaining from the fees after the disbursements herein specified shall be paid into the treasury of the Commonwealth.

Section 6. The Board shall examine all applicants for license to practise medicine or surgery in this Commonwealth, who are properly qualified according to the provisions of Section 7 of this Act; and no one shall be excluded or rejected on account of adherence to any special system of practice. It shall hold two stated meetings each year, one at Pittsburg on the first Tuesday in April,

and one at Philadelphia on the first Tuesday in May respectively, and may hold special meetings at such times as it may deem proper. All examinations, except as to manipulative procedures, shall be conducted in writing, and all examination papers, together with the reports and action of the Examiners thereon, shall be preserved among the records of the said Board for a period of five years, during which time they shall remain open for inspection at the office of the said Board.

There shall be examinations in anatomy, physiology, chemistry, toxicology, pathology, hygiene, principles and practice of medicine, surgery, and obstetrics, and each applicant, upon receiving from the Secretary of the Board an order for examination, shall draw by lot a confidential number, which he or she shall place upon his or her examination paper, so that when said papers are passed upon by the Examiners the latter shall not know by what applicant said papers have been prepared; and upon each day of examination all candidates shall be given the same set or sets of questions.

Section 7. Any person, on paying ten dollars to the Secretary of the said Board, and on presenting satisfactory proof of being over twenty-one years of age, of good moral character, and of having received a sufficient preliminary education, as defined by said Board, and a diploma from some legally incorporated medical college or university having authority to confer degrees in medicine, shall be entitled to examination by the said Board; and, in case of failure at any such examination, shall have the privilege of a second examination, without the payment of any additional fee.

Each applicant who shall have passed a satisfactory examination, shall receive from said Board under seal a license to practise medicine and surgery in the Commonwealth of Pennsylvania, and the said Board may at its discretion grant licenses without examination to persons holding licenses from similarly constituted Board of Examiners or Boards of Health in other Commonwealths.

Section 8. The Secretary shall record in a book to be kept for the purpose in the office of the said Board, the name and age, sex, residence, date, and place of graduation of each applicant, together with the date of examination, the examination number, the examination average on each branch, the general average, and date of issue of license, in case such license is granted. Said book shall be open to public inspection. And on or before the last day of December of each and every year, the said Board shall publish, or cause to be published, a list of the names and addresses of such persons as shall have received licenses from the said Board, within twelve months immediately thereto preceding.

Section 9. After the first day of February 1890, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this Act, and shall have exhibited to the prothonotary of the Court of Common Pleas of the County in which he or she resides a license duly granted to him or her by the said Board of Examiners and Licensers, whereupon he or she shall be entitled upon the payment of one dollar to be duly registered in the office of the prothonotary of the Court of Common Pleas in said county; and any person violating the provisions of this Act shall be guilty of a misdemeanor, and upon conviction thereof in the Court of Quarter Sessions of the County where the offence shall have been committed, shall pay a fine of not less than fifty, nor more than five hundred dollars for each offence.

Section 10. Nothing in this Act shall apply to commissioned medical officers of the United States Army or Navy, or of the United States Marine Hospital Service, nor to any member of the house, or resident staff of any legally chartered medical college, or university, or hospital during his term of service therein; nor to any physician of other States meeting duly registered physicians of this State in consultation; nor to those practising dentistry exclusively; and nothing in this Act shall be construed to prohibit the practice of medicine and surgery by any practitioner who shall have been duly registered before the first day of February, 1890, according to the terms of the Act entitled "An Act to provide for the Registration of all Practitioners in Medicine and Surgery," approved the eighth day of June, 1881.

Section 11. For the purpose of this Act, the words "practise medicine or surgery," shall mean to treat or attend any person for money, gift, or reward.

Section 12. The sum of one thousand dollars is hereby appropriated to meet the necessary and legitimate expenses of the said Board for the year A. D. 1890.

Section 13. Section 4 of "An Act to provide for the Registration of all Practitioners of Medicine and Surgery," approved the eighth day of June, Anno Domini 1881, is hereby repealed.

CORRIGENDUM.

In our issue of December 29, 1888, in Dr. Dale's "Notes on the Use of Strophanthus," page 716, at the end of the tenth line, insert *not.*

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 29 TO FEBRUARY 4, 1889.

KILBOURNE, HENRY S., *Captain and Assistant Surgeon* (U. S. Army).—Will accompany Battery "E," First Artillery, changing station from Vancouver Barracks to Presidio, San Francisco, California, as medical officer, and, upon completion of this duty, will report to the commanding general Division of the Pacific, for further orders.—Par. 2, *S. O. 6, Headquarters Department of California, Vancouver Barracks,* January 22, 1889.

By direction of the Secretary of War, the leave of absence on surgeon's certificate of disability, granted HENRY G. BURTON, *Captain and Assistant Surgeon,* in Special Orders No. 19, January 24, 1888, from this office, is extended six months, on surgeon's certificate of disability.—Par. 8, *S. O. 22, A. G. O., Washington,* January 26, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING FEBRUARY 2, 1889.

SCOTT, H. B., *Passed Assistant Surgeon.*—Detached from the Naval Hospital, Mare Island, California, and granted one year's sick leave.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIV. SATURDAY, FEBRUARY 16, 1889. NO. 7.

ORIGINAL ARTICLES.

THE EARLY RECOGNITION OF CANCER OF THE CERVIX UTERI.[1]

BY HENRY C. COE, M.D., M.R.C.S.,

PATHOLOGIST TO THE WOMAN'S HOSPITAL; ASSISTANT SURGEON TO THE NEW YORK CANCER HOSPITAL.

SOME apology may seem necessary for introducing a subject which is touched upon in most of the text-books on diseases of women, and with which we are supposed to be familiar. Having, through my connection with the New York Cancer Hospital, the opportunity of observing a considerable number of cases of incurable malignant disease of the cervix, I am constantly impressed with the frequency with which the mournful statement recurs in the histories of these unfortunates—that their attending physician never told them that there was anything serious the matter with them until their condition had become hopeless. The proportion of inoperable cases sent to hospital is so large, that it seems to me it is high time that the attention of the profession in this country should be called to the fact that we need not expect that our statistics of operations for the cure of cancer of the uterus will ever improve until the general practitioner learns to recognize the existence of the disease before it has reached a stage at which complete extirpation of the organ, if justifiable at all, offers little prospect of permanent relief. A recent German writer (Thiem) following out this line of thought, calls attention to the large number of operable cases treated at the Berlin clinic, as compared with those which come under the observation of surgeons in the smaller Continental cities, and attributes the difference to the fact that in the former the disease is recognized more promptly.

The marked impetus which has been given to the cultivation of skill in gynecological diagnosis has, unfortunately, not extended to the recognition of incipient cancer of the cervix. Cases of neglected ovarian cyst, even in remote country districts, are now so rare, that West's classical description of the final condition of such patients is seldom verified. Thanks to the increased intelligence of the profession, even the more obscure pelvic affections (ovarian and tubal) are often detected and submitted to surgical treatment, thereby saving many women from years of unnecessary suffering. It would seem strange that when the importance of laceration of the cervix is so widely acknowledged and the lesion is readily diagnosticated, its most serious consequence should be overlooked. Yet there is some excuse for this. So indefinite are the symptoms of commencing epithelioma, and so often are they masked by those referable to coexisting conditions, that specialist and general practitioner are alike deceived. Nothing is more natural or laudable than the desire on the part of the family physician to allay the fears of a patient who suspects the existence of cancer; but, unfortunately, this often leads him to defer the examination until it is too late. The patient herself is then the first to blame him for not insisting upon a measure to which she opposed so many obstacles. Specialists often fail to take into account the difficulties which are encountered by the attendant under these circumstances.

I propose to discuss this subject from a strictly practical standpoint, and shall touch lightly upon facts which are of more interest to the pathologist than to the clinical observer. It would be profitless to dwell upon the relative frequency of the different varieties of cancer of the cervix. I am in accord with Lusk (*American System of Gynecology*, vol. ii. page 602), who says:

> "The old familiar division of uterine cancer into scirrhus, medullary cancer, colloid cancer, and epithelioma at the present time has ceased to be tenable. It was based on tactile impressions, physical appearances, and peculiarities of growth. It represented not distinct varieties, but accidental conditions, or successive stages of development. It served to introduce into the subject an element of confusion detrimental to progress, as rarely two observers were found in agreement as to the classification of the disease in the same patient."

There are certain popular fallacies with regard to malignant disease of the uterus, which even yet exercise great influence over the medical mind. I allude more particularly to the importance assigned to the age and so-called "cachexia" of the patient, to hemorrhage, and to the presence of foul discharges from the vagina. Any one who has observed a number of cases of advanced carcinoma of the cervix must have been struck with the large proportion in which some, or even all, of these supposed pathognomonic symptoms are conspicuous by their absence. In over twenty per cent. of the recorded cases the patients are under forty years of age. Within the last year I have seen two women of twenty-four die from a recurrence of the disease, one after amputation of

[1] Read before the New York State Medical Society, February 5, 1889.

the cervix and the other after vaginal hysterectomy. Several women have come to my office with advanced epithelioma of two years' standing, who exhibited but slight evidence of ill-health; one of them has actually gained in weight since I amputated her cervix fourteen months ago.

Many, in fact the majority, of the patients at the Cancer Hospital are singularly free from pain. Pain, when it occurs, is a later symptom, referable to peritonitis rather than to the disease itself. Flooding, sufficient to jeopardize the life of the patient, is exceptional, in my experience. I am inclined to regard it as quite as rare as fatal hæmoptysis. The profuse, foul, watery discharge with which we are so familiar, is by no means a constant attendant of advanced malignant disease, even when extensive ulceration is present; careful observation of patients in hospital and private practice has frequently demonstrated to my satisfaction the fact that it may be slight, even in cases in which a vesico-vaginal fistula has formed. Of course, some allowance must be made for the effect of frequent vaginal injections (especially when the admirable deodorizer creolin is employed), but the cases to which I refer were those of patients who had recently come under observation and had not used any means to secure thorough cleanliness.

These prefatory statements with regard to the negative evidences of advanced malignant disease of the cervix, which are all based on careful records, will serve to show how slight may be the symptoms which attend the same disease in its incipient stage.

"The first symptom in five-sixths of all cases of cervical cancer," says Winckel, "is hemorrhage." Let us not understand by this profuse loss of blood, such as sometimes occurs during the stage of ulceration. The hemorrhage, which is only an expression of the local hyperæmia, may take the form of menorrhagia or metrorrhagia (more commonly the former) and presents different features according as it occurs in patients before, during, or after the climacteric. It has seemed to me in several instances, where the women were under forty, that the menorrhagia, from which alone they sought relief, was directly due to hyperplastic endometritis, and not to the condition of the cervix at all. In two recent cases I did not even suspect commencing epithelioma, but proceeded to curette the uterus and to excise the cervix, as in any case of bilateral laceration with extensive erosion and induration. A large quantity of fungosities was removed, and the hemorrhage was entirely relieved, the subsequent periods being normal. On microscopical examination of both cervices, there was no doubt as to the presence of malignant disease. Now, in these cases the hemorrhage was clearly due to the diseased condition of the endometrium, which doubtless preceded the development of epithelioma, being only a link in the pathological chain of which the first was the cervical laceration. I mention this point in order to caution the unwary against the error of inferring that because they have removed the immediate cause of the menorrhagia, nothing more remains to be investigated.

In these young women, I would lay particular stress upon one symptom, which is apparently so unimportant that it often passes unnoticed; I allude to slight hemorrhage (often a mere "show") after coitus. Most of the books mention this, but few emphasize its importance. If you take the trouble to question patients about this sign, you will be surprised to find how often it can be identified as the initial objective symptom of malignant disease. I need not enter into an explanation of its cause. Women of the better class will of course rarely mention it unless questioned, but I hold that it is the physician's duty to inform himself on this point whenever he has the slightest suspicion of a sinister condition. Less often the same bloody discharge is noticed on straining during defecation. This single symptom, hemorrhage after coitus, led me to examine and to detect cancer of the cervix in a robust German woman, who had never had a single pain referable to the pelvic organs.

Irregularity in the recurrence and variation in the normal amount of the menstrual flow, are regarded by both the laity and profession as indicative of the approaching menopause. Börner, who has written the most recent monograph on this subject, lays great stress upon the fact that these "atypical" hemorrhages are frequently pathological in their character, the increased flow being really due to some morbid condition of the uterus. The patient is lulled into a sense of security, not only by her own feeling that her symptoms are due to the change of life, but by the assurance of her physician, who too easily concurs with her opinion and thinks that an examination is unnecessary. How often are gynecologists called to see women with fibroid tumors, who have been allowed to bleed for months until they have become almost exsanguinated, while they have been treated "expectantly," with the idea that hemorrhage was physiological and would cease spontaneously! Cancer of the cervix, of course, does not give rise to such profuse menorrhagia, but it causes an increase in the menstrual flow too marked to be referred to the climacteric alone. Even a bare suspicion that the condition is hyperphysiological should lead us to investigate thoroughly, since we know that malignant disease of the portio develops in the majority of cases in the fifth decade. The advice given by Hart and Barbour is sound, viz.: "In all cases in which a patient over forty years of age seeks advice with symptoms referable to the pelvis, a careful examination should be made."

There are certain peculiarities with regard to the

establishment of the menopause which should especially awaken our suspicions. Premature climacteric hemorrhages (between thirty-five and forty) are usually pathological; of still more doubtful import is menorrhagia prolonged after the age of fifty.

Börner goes so far as to state that in such women "the most perfect regularity in the monthly flow does not justify us in deciding at once that the conditions are normal, and that there is simply a delayed menopause."

Post-climacteric hemorrhages, it is hardly necessary to add, are a sinister omen. If they occur soon after the establishment of the menopause, both patient and physician may fall into the error of regarding them as simply a recurrence of the former menorrhagia; but, these hemorrhages are usually slight and insignificant, appearing at irregular intervals. There may be simply a pinkish discharge, which bears no resemblance to the atypical bleeding. Women are more likely to notice this symptom now than they were in earlier life, because they are always on the lookout for cancer after the "change." But, in spite of this, experience shows that even in such cases the existence of malignant disease is not recognized as promptly as it should be.

Pain in commencing epithelioma, as I have before stated, is seldom of such a nature as to afford a clew to the condition present. It seems to me an error to refer to any particular variety of pain as pathognomonic of malignant disease of the uterus. In the earlier stage the patient may have only an occasional vague, shooting pain in the back or in the lower part of the abdomen; or it may be of a dull, aching character. It should be remembered that she has already an extensive laceration of the cervix of long standing, and probably the remains of former peri-uterine inflammation, the symptoms of which would mask any fresh ones produced by the incipient cancer. I have noted that pain in the left sciatic nerve was the first symptom of beginning trouble in a patient in whom there was absoluteiy no indication of pelvic disease. The neuralgia was peculiarly intractable and had been treated for some time before she came under my care. It ceased immediately after amputation of the cervix and has never returned. Since my attention was called to this symptom I have observed it in other cases.

The characteristic watery discharge is not observed until ulceration occurs. But profuse leucorrhœa (without odor) is a common accompaniment of cervical erosions. When it is frequently streaked or tinged with blood, it becomes significant.

These symptoms, slight as they are, are all which have been noted in connection with incipient malignant disease of the cervix. They are so indefinite, that unless we are in the habit of regarding every pelvic trouble as serious until it is proved to be otherwise, we shall frequently either overlook them entirely, or regard them as not sufficiently important to justify an examination. Hebra used to say: "Any one can have syphilis." We might add: "Any woman may have cancer."

Supposing we are led to make a vaginal examination, are the feel and appearance of the cervix sufficiently characteristic to clear up all doubt regarding the diagnosis? I cannot answer unhesitatingly in the affirmative. The examining finger encounters a large indurated cervix, presenting a unilateral (or, more commonly, a bilateral) laceration, with eversion of the lips. The soft, velvety sensation imparted by the erosion may be masked by the general induration, which, it is important to note, is not confined to the angle of the tear. The everted mucous surface bleeds more readily than a simple erosion. Instead of the ovula Nabothi usually felt. small, hard nodules are often present. Spiegelberg's test—immobility of the mucous membrane over the subjacent indurated tissue—is of no practical value. I would rely principally on the general sclerosis of the hypertrophied cervix, associated with bleeding of the everted mucous membrane. The uterus is usually enlarged, but this enlargement is of long standing, resulting from the original laceration; it is, as a rule, movable at this stage. The cervix is often quite insensitive, although tenderness is more likely to be present than after ulceration has occurred. Inspection of the diseased parts through the speculum adds but little to the information obtained by the touch. The examiner sees a hypertrophied cervix with an angry-looking erosion. According to Stratz (*Zeitschrift für Geb. u. Gyn.*, Bd. xiii. Heft 1), a sharp line of separation between the diseased and healthy tissue will be observed, the former occupying a somewhat higher level. Scattered through the latter will be seen glistening, yellowish-white nodules, which on section present a granular appearance. It is safe to say that these are not constantly present; they are rather a manifestation of that form of carcinoma which begins as nodules beneath the mucous membrane. Schroeder believes that every papillary growth on the cervix having a broad base, should be regarded as cancerous; on the other hand, if a papillary ulcer is surrounded by a zone of follicles it is more likely to be benignant.

The text-books instruct us in case of doubt to excise a piece from the cervix and to submit it to microscopical examination. This is excellent advice, which certainly should be followed in every instance where the decision of the surgeon with regard to the performance of a radical operation is based entirely upon the pathologist's report. I would have had less cause for regret if I had not omitted to take this precaution on one occasion. But the pathologist sometimes rightly declines to shoulder all the responsibility. The microscopical appearances

of the suspected tsisue are such that he does not feel justified in giving a positive opinion with regard to its malignancy. With Virchow's experience fresh in our minds, we cannot afford to blame any microscopist for sometimes hesitating. I have dilated on this subject in a recent paper on "The Microscopical *versus* the Clinical Evidences of Malignant Disease" (*N. Y. Medical Journal*, June 18, 1887), in which I called attention to the fact that it was sometimes necessary to examine many sections of suspected tissue before one was found which justified the pathologist in making the diagnosis of cancer, and that the small fragment submitted for examination might not be taken from the most characteristic portion of the cervix. In short, the evidence afforded by the microscopical examination may be entirely negative.

In excising a fragment for examination, be careful to take out a generous wedge, including both the mucous membrane and the subjacent muscular tissue. The pain is insignificant, so that I never use an anæsthetic. Select the most suspicious spot, seize the underlying tissue with a tenaculum, and remove the wedge with two snips of the scissors. I shall not enter upon a description of the microscopical appearances in simple erosion and in epithelioma, but shall merely call attention to the main point which should be considered in deciding upon the character of the suspected tissue. It is not enough, as Friedländer clearly shows, to apply Waldeyer's definition of cancer—"an atypical proliferation of epithelium"—since the same atypical cell-processes may be seen in sections of a simple erosion. Evidence of active cell-proliferation, granulation tissue, glandular hyperplasia—all these may accompany a purely benignant condition. The malignancy of the process is shown by its disposition to invade the deep-lying parts, while an innocent growth remains limited to the tissue from which it originated. Friedländer expresses this so clearly that I quote the following from his work on "Microscopical Technology": "If we discover in the uterus that the process is not confined to the mucous membrane, but that it also invades the muscular tissue, and that the muscle is partly replaced by granulation tissue traversed by outgrowths of atypical epithelium, we have to do with a clearly malignant element, and then only do we make the positive diagnosis of cancer." It will be evident from this that you cannot blame the pathologist if he refuses to give you a positive opinion unless you send him something more than a mere snipping from the hypertrophied mucous membrane.

There should be little room for doubt regarding the proper treatment of these cases, whether cancer has actually developed or not. In every case of laceration of the cervix, accompanied by extensive erosion and induration of the subjacent tissues, the proper course to pursue is to excise all the diseased tissue, even if this involves ablation of the entire cervix. This is only following Emmet's teaching in regard to the thorough excision of the "cicatricial plug." "I have always," he states, "advocated and practised removal of the cervix where the tissues have become so degenerated that the fear of epithelioma might be entertained. The occasion is rare, but recently I have resorted to the operation in several instances as a precaution, from witnessing epithelioma spring up in a case in which I had trusted too much to the reparative power." It seems to me that "excision" is a more correct designation for the operation than "amputation;" the latter is more properly applied to removal of the cervix in cases of actual elongation or hypertrophy. Excision, as I understand it, is by no means so rarely indicated as one would infer from the above quotation, and it would be well if it were practised more frequently instead of simple repair of the existing laceration. The same rule applies here as in any operation for the removal of neoplasms in general surgery—amputation of the breast, for example—to excise freely all suspicious indurated tissue bordering on the original wound.

It is unnecessary to dwell upon the technique of excision, which is somewhat similar to that of Schroeder's operation for the radical cure of cervical endometritis, the vaginal mucous membrane being preserved in both instances, although in the former much more of the cervical tissue is removed. The introduction of a plug (of iodoform-gauze or glass), in order to keep the canal patent, is an important point, nor should it be forgotten that the sutures must be inserted more deeply than usual if the surgeon would insure union of the underlying parts. Silver wire can alone be depended upon in these cases. The inexperienced operator must be neither too timid nor too bold, since he will, on the one hand, not remove all the diseased tissue, or, on the other, he will enter the subperitoneal space—an accident which may lead to unpleasant consequences if the operation is not thoroughly aseptic. The latter will be avoided by always cutting toward the centre. If this caution is followed, the apex of the cone may be as high as the os internum, the mucous lining of the entire cervical canal being removed with the cone. Remembering the insidious manner in which cancer originates in, and creeps along, the cervical endometrium, it will be apparent that an attempt to preserve a strip of undenuded tissue in the canal will probably defeat the object of the operation, which is to remove all the diseased portion of the cervix, and thus to provide against future recurrence.

The fear of hemorrhage during operations on the cervix is incomprehensible to those who have had much experience in minor gynecological surgery.

The "circular artery" is a veritable bugbear. Out of five or six hundred operations which I have observed, I cannot recall one in which the bleeding was not promptly and effectually controlled by a single deep suture. It may be asked: "Can excision be properly performed by the general practitioner?" Why not, providing that he is competent to repair a laceration of the cervix? It is important to note, however, that one must be able to deal with every complication that arises, the same as the would-be laparotomist. It is certainly unfortunate for a tyro to subject a woman to a laparotomy which is not completed simply through his timidity or lack of experience; on the same principle, the general practitioner, whose experience is necessarily limited, may shrink from excising the entire cervix when necessary, confining himself to a partial operation which is worse than useless. It is better to allow to heal by granulation rather than to obtain perfect union at the expense of leaving behind a focus of malignant disease.

A word with reference to the ultimate results of excision. I would not be understood as urging it as a substitute for a more radical operation, when the latter is clearly indicated, but I do regard it as the only justifiable measure when the cervix is only "suspicious." A sufficient number of cases of vaginal hysterectomy (some of which terminated fatally) for simple erosion of the cervix are on record to render us somewhat cautious about resorting to this radical treatment until the disease has developed beyond the shadow of a doubt.

Excision is a simple, safe, and effective operation, unattended by subsequent complications, which often nips the disease in the bud, so that it never returns. Even if it does, the recurrence is promptly observed, and high amputation or vaginal extirpation may then be performed just as well as at first. Another consideration, by no means unimportant, is the fact that by performing the minor operation we spare the patient the thought that her condition must be wellnigh hopeless in order to call for removal of the entire uterus. The dreaded word "cancer" need not be mentioned, neither is it necessary to impress her with our own gloomy forebodings. It is enough to explain to her that her condition is such that the prompt performance of a minor operation will save her serious trouble in the future. By the exercise of a little tact, she may be spared the knowledge of how narrowly she escaped that danger, as well as the agonizing doubt of patients who live in constant dread of a recurrence of the disease.

Summary.—The majority of the cases of cancer of the cervix uteri do not come under the observation of the surgeon before the disease has progressed so far that it is impossible to perform a *successful* radical operation. The attending physician is too often responsible for this delay, although he is not entirely inexcusable for misinterpreting the initial symptoms.

The symptoms of incipient malignant disease of the cervix are seldom characteristic, but they are such as to awaken suspicion and to justify an examination. Slight, irregular hemorrhages, especially after coitus, are always significant, above all in women who have passed the menopause. Pain is seldom characteristic. There is no offensive discharge in the early stage.

Hypertrophy and general induration of the cervix, accompanying an erosion which bleeds easily to the touch, should lead the physician to confirm the diagnosis by excising a fragment of the suspected tissue and subinitting it to microscopical examination.

A positive opinion regarding the presence of malignant disease is justified only by the finding of processes of atypical epithelium which *invade the subjacent muscular tissue.*

Excision of the cervix should be performed in every case of extensive erosion with general induration, whether cancer has actually developed or not. This is often sufficient to insure a cure, and thus to render a radical operation unnecessary. If the disease recurs, the uterus may be extirpated subsequently.

OBSERVATIONS ON THE DIGESTIVE FERMENTS.[1]

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RECENT years have witnessed a marked development in our knowledge of the physiology of digestion. A great mass of histological and physiological details has been gradually accumulated by which a clearer insight has been obtained into many of the processes of secretion, digestion, and absorption. Chemical science has lent its aid and given us light on the composition and character of the digestive juices and on many hitherto obscure points in the metamorphism of the various food-stuffs, and at the same time taught us to appreciate its value in the study of scientific medicine.

There is, I think, no branch of medicine in which a proper appreciation and true understanding of physiological processes are so necessary as in the pathology of digestion. In the words of Dr. Ewald, "digestion is comparable to a complicated clockwork, the derangements of which are readily shown by the movements of the hands, but the causes of which are difficult to discover from the complexity and concealed position of the movement. Therefore, the

[1] Read before the Section on Pædiatrics of the New York Academy of Medicine, January 23, 1889.

pathology of digestion requires a well-grounded knowledge of the complex processes which effect the transformation of our food into chyle."

Among the more recently acquired facts pertaining to digestion, none are of more importance than those which relate to the digestive ferments. In the processes going on in the alimentary canal, by which the nutritive portions of the food are transformed into soluble and diffusible products fitted for the nourishment of the blood and of the tissues, ferments play an all-important part; without the action of the unorganized ferments, the nutrition and life of the organism would be impossible. As you well know, the more important digestive ferments or enzymes are of two kinds: amylolytic, acting on starchy matter, and proteolytic, acting on the albuminous food-stuffs. As examples of the former, we have the ptyalin of saliva and the amylopsin of pancreatic juice, as well as the diastatic ferment of the bile; as examples of the latter, the pepsin of the gastric juice and the trypsin or pancreatin of the pancreatic fluid.

The terms fermentation and ferment may be variously defined, but yet, after all, we cannot add much to the definition current in the fourteenth century, viz.: "a force which without becoming weaker itself can produce great effects in other masses." We know that this is not strictly correct, yet the amount of ferment involved in any given fermentation is, as a rule, so infinitesimally small, so out of proportion to the magnitude of the chemical processes or changes caused by it, and at the same time so continuous in its action, that we may well marvel at its power and wonder at its methods. We feign knowledge, however, and call it a *catalytic* action, a term which clearly exposes our ignorance but which helps to foster our self-esteem.

The amylolytic and proteolytic ferments are alike in that they act only in the presence of water; that the products of their action contain, as a rule, more oxygen and hydrogen than the original matter, thus implying a hydration process; and that their action is most energetic at the body temperature. They differ, however, in the medium in which they act: the amylolytic ferments being most energetic in a neutral fluid, wholly inactive in the presence of free acid; the proteolytic ferment pepsin, on the other hand, acting only when in combination with an acid, preferably hydrochloric, while trypsin acts best in an alkaline medium, although also active in a neutral fluid. These, what may be called minor points of difference are essential ones, however, and serve important purposes in the economy. For, the ferments are extremely sensitive to the action of foreign matters and the simple changes of reaction from acid to alkaline, and *vice versa*, met with in the alimentary tract are sufficient to destroy the different ferments as they are exposed to the changed conditions in their journey onward, and doubtless only such escape destruction as are absorbed and ultimately excreted through the kidneys. Thus, as we shall see, the amylolytic ferment secreted by the salivary glands is undoubtedly destroyed by the acid of the gastric juice, the proteolytic and rennet ferments secreted by the gastric glands are destroyed by the conjoined action of trypsin and the alkaline salts of the pancreatic and intestinal secretions, while the ferments of the pancreatic juice are probably in turn destroyed, at least in great part, by the acids of the large intestine.

Bearing in mind the extreme importance to the economy of these unorganized ferments, it may not be amiss to consider briefly some of the conditions which modify their activity. I am aware, however, that I am dealing with a much-abused subject, one possibly worn threadbare, certainly one concerning which of late years much has been said and written. But there are many conflicting statements, many downright contradictions, and I have ventured out of my experience in the laboratory to present to you the results of my own observations, enlarged somewhat by those of others which have seemed to me worthy of credence. A somewhat continuous study of the digestive ferments in their relation to normal digestive action has led to an accumulation of data,[1] most of which, to be sure, have come from bottle and test-tube study, but yet I think not to be ignored on that ground, nor on the other hand to be accepted necessarily in their entirety, but to be looked upon as statements of fact so far as they go, and as suggestions to be tested clinically when of sufficient importance. So far as the pure chemistry of digestion is concerned, the nature of the ferments and their action, the influence of various agents on their activity, etc., the laboratory is the proper place for such study and the data so obtained may be of great advantage in pointing the way for clinical experiments. It is to be ever borne in mind, however, that the living alimentary tract is a somewhat different mechanism from a glass beaker and that in the former we have to deal with a complication of conditions not met with in our artificial digestions.

In considering first the action of the amylolytic ferments, we will speak only of the ptyalin of saliva and the diastase of malt; the one as an illustration of a normal digestive ferment, the other as a good example of a common remedial agent.

What is true, however, of the ptyalin of saliva is also applicable to the amylolytic ferment of the pancreatic fluid.

Human mixed saliva as ordinarily secreted has an alkaline reaction, the average of fifty-one samples

[1] See Studies from the Laboratory of Physiological Chemistry. Sheffield Scientific School of Yale University. Vols. i.–iii.

showing an alkalinity equal to 0.08 per cent. sodium carbonate. The highest amount found was 0.144 per cent., the lowest 0.059 per cent. In spite of this being the normal reaction of the secretion, its power of digesting starch is far greater when the fluid is exactly neutral than when alkaline, a difference which shows still more distinctly the greater the fluid is diluted. The ferment acts most energetically in a neutral fluid. The same is true of the diastase of malt, its diastatic action showing stronger in a neutral fluid than in an alkaline medium. Increasing the alkalinity of the fluid, either diastase or saliva, tends to retard the amylolytic action of the ferment, the extent of retardation being in proportion to the amount of alkali carbonate present. The percentage of alkali, however, which hinders diastatic action can be designated only for definite mixtures, being dependent upon the dilution of the fluid and consequently upon the amount of albuminous matters and inorganic salts present. The presence of 0.3–0 5 per cent. sodium carbonate will almost entirely stop the action of undiluted saliva on starch, while with neutral saliva greatly diluted the presence of even 0.005 per cent. sodium carbonate will diminish decidedly the action of the ferment. Dilute alkalies not only hinder the action of these amylolytic ferments, but they also destroy them, especially at the body temperature. Their destructive power, however, is not as great as their retarding action. While these facts plainly indicate the extreme sensitiveness of the ferments toward alkaline fluids, we must not be too hasty in assuming a destructive action whenever alkalinity becomes pronounced. Peptones and proteid matters, in general, all tend to diminish and even prevent in part the retarding and destructive action of dilute alkalies, hence in the intestinal canal and elsewhere where the products of proteolytic action or other forms of proteid matter are present, the amylolytic ferments may endure the presence of amounts of alkalies which alone would quickly lead to their destruction.

Toward acids, the amylolytic ferments, both ptyalin and diastase, are more sensitive even than toward alkalies. When diluted, neutral saliva or a solution of diastase is mixed with diluted hydrochloric acid in such proportion that the mixture contains only 0.003 per cent. of the free mineral acid, amylolytic action is stopped almost completely. With 0.005 per cent. of free hydrochloric acid destruction of the ferment is complete in a very short time, especially at the body temperature.

It has been generally held hitherto, and is even now to some extent, that the ferments of saliva and diastase as well regain their power of transforming starch into sugar when they reach the small intestine, where the contents are alkaline, this view assuming that in the stomach the activity of these ferments is simply suspended by the acidity of the gastric juice. It has even been questioned whether the acidity of the stomach contents ever becomes sufficiently great to stop completely the solvent action of the amylolytic ferments on starch.

Many eminent authorities stand committed to this view of non-destruction by the gastric juice, but it is a question easily settled by experiment, and I am quite convinced that the presence of a few thousandths of one per cent. of *free* hydrochloric acid is sufficient to stop quickly all amylolytic action. We are to bear in mind, however, that because a fluid reacts acid to test-papers, it does not necessarily follow that it contains free acid. In gastric juice, for example, especially after digestion is well under way, there are present comparatively large amounts of albumoses, peptones, etc., all of which unite with the acid of the gastric juice, forming a *loose* chemical combination, to be sure, but yet one in which the acid is far less powerful toward ferments at least than when uncombined.

Hence the question of retardation and destruction of amylolytic ferments in the stomach needs further consideration; we need to know how the presence of proteid matter affects the action of the acid of the gastric juice, and we find, by experiment, that nearly all forms of albuminous matter prevent, to a certain extent, the destructive action of the acid. The acid-proteids formed, however, have more or less of a destructive action themselves, and when all the proteid matter present in a given mixture is completely saturated with acid, although no free acid may be present, the amylolytic ferments soon lose their action on starch, and in a short time are completely destroyed. Hence it follows that while the proteids of the food probably protect for a time the ptyalin of the saliva, or other amylolytic ferments introduced, by combining with the hydrochloric acid as it is secreted, in a very short time these must become saturated, and free acid be present; and as soon as free hydrochloric acid is present, or even before, a rapid destruction of the amylolytic ferments must take place. And to this destructive action must be added, also, the slower action of the acid-proteids. That free acid is normally present in the stomach contents can be easily shown by several tests, notably with tropæolin oo. The length of time after the ingestion of food, before free acid makes its appearance in the stomach must be variable, dependent in great part upon the amount and character of the food taken.

There is, I think, among many physiologists a growing impression that for fifteen to thirty minutes after taking food an active digestion of starch goes on in the stomach. Von Velden[1] found, by methods perhaps somewhat questionable, that for a time vary-

[1] Zeitschrift für physiologische chemie, 3, p. 205.

ing from three-quarters of an hour to two hours after eating, the fluid in the stomach, obtained by a stomach-pump, gave no color reaction with methyl-aniline violet or tropæolin for free acid, although the mixture showed an acid reaction to test-papers. Uffelmann,[1] likewise, found a similar absence of free hydrochloric acid in the case of a boy with a gastric fistula, and fed on a mixed diet, free acid appearing from forty-five to sixty minutes after the ingestion of food. Kretschy and Seemann obtained similar results. More recent experiments of Ewald,[2] however, appear to show that the time of appearance of free acid depends entirely on the food; thus, in one experiment, with a person where vomiting could be produced at will, a meal of sixty grammes of wheat bread was followed by the appearance of free hydrochloric acid in the stomach contents in thirty minutes; with hard-boiled eggs, even after fifteen minutes. With a moderate meat diet (120 grammes) free hydrochloric acid was detected only after one and a half hours. Further, Ewald and Boas,[3] by experiments on inmates of the "Städtischen Frauen-Siechen-Anstalt," Berlin, have found that on feeding starch-paste (200–300 c.c.), made from either potato or wheat starch, free hydrochloric acid appears in the stomach contents very quickly. The experiments were conducted on patients with sound stomachs, the stomach being empty, and indeed rinsed out with water just prior to the experiment, and the wash-water proved free from acid. In this way they found that the ingestion of the starch-paste was followed in one case by the appearance of free hydrochloric acid in ten minutes, the fluid vomited containing 0.04 per cent. HCl, the acid increasing after twenty-seven minutes to 0.28 per cent. In another experiment, after the same order, 0.13 per cent. HCl was found in the fluid ejected after fifteen minutes, while at the end of thirty minutes the acid had increased to 0.29 per cent. In no case was lactic acid found in the ejected matter.

These same investigators have also, in part, confirmed our statements regarding the action of acids on the amylolytic ferment of saliva, by a series of interesting clinical experiments on patients in the Frauen-Siechen-Anstalt. By feeding a one per cent. starch-paste solution to which a definite amount of hydrochloric or other acid had been added, to patients whose stomachs had been previously rinsed with water, they found that the smallest percentage of hydrochloric acid which would hinder the formation of reducing substances was 0.066 per cent., the stomach contents being ejected or withdrawn five to forty-five minutes after the ingestion of the starch. With some patients, however, the acid could be raised to 0.1 or even to 0.12 per cent., and still have a trace of reducing bodies formed, the latter being presumably sugar. With lactic acid, the amount could be raised to between 0.1 and 0.2 per cent. and still have some starch converted. With butyric acid, 0.2 per cent. allowed some conversion. It must be remembered, however, that these percentages are simply the percentages of acid in the starch-mixture introduced into the stomach, and not the percentages of acid in the stomach contents, where there would naturally occur a dilution and partial neutralization from the inflow of alkaline saliva, counterbalanced, perhaps, by the secretion of acid gastric juice.

The most important point in this connection, however, is the fact that such conversion of starch as does occur in the stomach under these circumstances, takes place during the first five minutes, the amount of sugar found in the ejected fluid being the same at the end of five minutes as at twenty minutes; further, the amount formed is quite small, implying that the ferment is quickly stopped in its action by the acid present. Ewald also concludes that the presence of 0.077 per cent. of hydrochloric acid is sufficient, under the above circumstances, to destroy completely the ferment.

Coupling these facts with those already mentioned, I think we can safely conclude that the action of the diastatic ferments can, at the best, continue only for a short time in the stomach, and that cessation of amylolytic action is quickly followed by destruction of the ferment, through the action of the free and combined hydrochloric acid. Further, it is obvious that the administration of diastatic ferments, however active, by mouth, with the intention of supplementing the pancreatic digestion of starch in the small intestine, can be of little value, since the ferment must inevitably be destroyed before reaching the seat of action.

The extreme sensitiveness of the amylolytic ferments toward acids is substantiated by their behavior toward many common therapeutic agents;[1] many of the so-called antiseptics and germicides likewise show marked action on these ferments, even when present in very small quantities. Mercuric chloride or corrosive sublimate, also mercuric iodide and bromide retard the action of the amylolytic ferments, even when present in a few thousandths of one per cent. Curiously enough, mercuric cyanide, when present in small amounts, appears to increase the solvent action of these ferments on starch. Large percentages, however, retard their action. Sulphate of copper has a very marked inhibitory action, while lead acetate has a retarding action only when present to the extent of two or three per cent. Arsenious oxide and ammonium

[1] Jahresbericht der Thierchemie, 1880, p. 302.
[2] Virchow's Archive, vol. ci. p. 362.
[3] Virchow's Archive, vol. civ. p. 272.

[1] For the quantitative data, showing the exact amount of retardation or stimulation of amylolytic action, see vol. i. of Studies in Physiological Chemistry, Yale University.

arsenate, in small fractions of a per cent., both cause neutral saliva to convert a larger amount of starch into sugar than the saliva alone would do, while arsenic acid retards the action of the ferment. Tartar emetic, in small amounts, has a marked stimulating influence on the salivary ferment, but large amounts, as five per cent., very noticeably diminish the amount of sugar formed. Potassium chlorate, in small quantities, increases the amylolytic action of saliva, while the presence of even five per cent. of the salt has only a slight retarding effect. Sodium chloride, likewise, has a slight stimulating action, and large percentages cause only a slight diminution in the amount of starch dissolved. Many of the alkaloidal salts cause the salivary ferment to form an increased amount of sugar, apparently through stimulation of the ferment, notably morphine sulphate, quinine sulphate, cinchonine and cinchonidine sulphates, atropine sulphate, and brucine sulphate. Strychnine sulphate, on the other hand, has a slight retarding action on the ferment. Antipyrin and antifebrin both have a slight inhibitory action on the salivary ptyalin. Urethan, in small fractions of a per cent., has a slight stimulating action, while larger amounts diminish somewhat the quantity of sugar formed. Thallin sulphate, in very small percentages, has a noticeable stimulating action, while paraldehyde has a marked inhibitory effect.

Of gases, oxygen and carbonic acid both decidedly increase the amount of sugar formed by neutral saliva, while hydrogen noticeably diminishes the action of the ferment.

Pepsin, the best known of the proteolytic ferments, and perhaps the most important, has been the subject of study for many years. Ever since Eberle, in 1834, called attention to the solvent power of an acid extract of the stomach mucosa, investigators have been at work in a vain attempt to isolate the active principle in a pure state. Schwann named the hypothetical substance pepsin, and Wasmann, just fifty years ago, made an elaborate but fruitless attempt to isolate the pure ferment. Even at that time the powerful digestive properties of the ferment were recognized, for Wasmann states that a weak acid solution, containing only $\frac{1}{60000}$ part of the impure ferment, will dissolve coagulated albumen in from six to eight hours. A long row of illustrious names may be added to the list of those who have endeavored to widen our knowledge of this proteolytic ferment. Pappenheim, Valentin, Elsässer, Frerichs, C. Schmidt, and many others may be mentioned as among the first to work upon this subject, while nearly every prominent physiologist since has made some contribution to broaden our knowledge of this digestive ferment.

Among the many facts connected with the proteolytic action of pepsin, which it is important for us to remember, is that the acidity of the gastric juice is mainly due to free hydrochloric acid. The elaborate experiments of Bidder and Schmidt still stand the test of criticism, and while we have many times, especially in disordered conditions of the stomach, lactic, butyric, acetic, and possibly other acids present in the stomach contents, we are to look upon them as the products of various forms of fermentation, rather than as secretory products from the stomach cells.

Richet[1] has claimed that the hydrochloric acid of the gastric juice does not exist free, but in a state of loose combination with leucin, as chloride of leucin. His experiments are of value, since they furnish added proof that the gastric juice contains but one mineral acid; but few physiologists are inclined to believe that it exists combined with leucin. Certainly, for a vigorous gastric digestion, free acid is as indispensable as pepsin itself. Leucin is undoubtedly often present in natural gastric juice, and in extracts from the stomach mucosa, but I have many times also found considerable quantities of xanthin, hypoxanthin, and other similar crystalline extractives, and I see no reason for assuming a combination in the one case any more than in the other.

As to the strength of hydrochloric acid in the gastric juice, Richet, as the mean of seventy observations on a patient who had had gastrotomy performed for an impermeable stricture of the œsophagus, found 1.3–1.7 per mille. Other physiologists give somewhat higher results and 0.2 per cent. is usually taken as the average content of acid in active gastric juice. It can be easily shown, however, by experiment, that the strength of acid best fitted for digestion depends somewhat upon the amount of ferment present, and the character of the proteid to be digested. Using a pepsin extract of moderate strength and blood-fibrin as the proteid to be digested, we have found by quantitative trials that the most vigorous proteolytic action is usually obtained in the presence of 0.1 per cent. pure HCl. Thus, in one series of experiments where the amount of pepsin was the same throughout, with 0.05 per cent. HCl, 73.8 per cent. of the fibrin was dissolved; with 0.1 per cent. HCl, 89.3 per cent. of fibrin; with 0.2 per cent. HCl, 84 per cent of the fibrin; with 0.3 per cent. acid, 81.7 per cent.; while with 0.4 per cent. HCl only 63.8 per cent. of the fibrin was dissolved. It is also to be remembered, that while the proteolytic action of the ferment is most vigorous in the presence of hydrochloric acid, other acids will, to a greater or less extent, take its place, viz., phosphoric, nitric, sulphuric, oxalic, acetic, lactic, etc. Thus, with oxalic acid, proteolytic action is vigorous in the presence of 0.5–2 per cent. of the acid; most

[1] Du suc gastrique chez l'homme et les animaux.

vigorous with 1.5 per cent., such a mixture dissolving about three-fourths as much proteid as the same amount of pepsin with 0.1 per cent. hydrochloric acid. With nitric acid, proteolytic action is most energetic in the presence of 0.2 per cent.; with sulphuric acid, in the presence of 0.3 per cent. Compared with 0.1 per cent. hydrochloric acid, nitric acid is more than four-fifths as active, while sulphuric acid is little more than one-fourth as active, and acetic acid is practically worthless. Hydrobromic and hydriodic acids can, to a certain extent, replace the hydrochloric acid of the gastric juice, as Putzeys[1] has previously found, although they are both much less active than the latter. Moreover, hydrobromic acid is much more efficient than hydriodic acid in connection with the ferment, for in comparatively large doses the latter will completely stop all proteolytic action. Whenever bromides and iodides are taken into the stomach, they are supposed to be decomposed by the acid of the gastric juice, with formation of hydrobromic and hydriodic acids, respectively, by which the retarding action of these two salts on gastric digestion is produced. Hence, as a practical result, the bromides and iodides should be given one-half to one hour before meals.

There are, I presume, many diseased conditions where imperfect digestion is due as much to the want of necessary acid as to lack of ferment. Thus in fevers, as a rule from whatever cause, a less active gastric juice is secreted than normally, one possessed of far less proteolytic action, though generally acid. The acidity, however, is frequently diminished and, as Ewald remarks, confirms the old habit of prescribing phosphoric or hydrochloric acid in fever mixtures. The simple fact that the stomach contents are acid does not necessarily indicate that the fluid is of the proper degree of acidity or even contains the proper acid suited to the ferment. Acetic, lactic, or butyric acid may be present and render the stomach juices decidedly acid, and yet it be necessary to give acid in order to bring the acidity up to the point suitable for the best action of the pepsin.

It is also possible to give an acid, as possibly salicylic, which will have a double action, viz., an antifermentative one and a digestion-promoting one. Certainly in many forms of dyspepsia, as the researches of Ewald have shown, the derangement originates in the absence of the required degree of acidity rather than in insufficiency of pepsin. In many such cases there may be an "acid stomach" and yet the secretion of normal gastric juice be practically suppressed, the acidity being due mainly to lactic acid doubtless formed by fermentation in the stomach; an acid which acts with pepsin only about one-sixth or one-eighth as well as hydrochloric acid. Occasionally, as you know, the stomach contents have an alkaline reaction, as when a strongly alkaline transudation is poured into the stomach in connection with diminished or entirely abolished secretion of acid. Again, there are many other forms of dyspepsia or gastric troubles where there is a relative insufficiency of secretion, where pepsin as well as acid is wanting, and where artificial digestive preparations are especially called for.

With reference to the influence of drugs on the proteolytic action of pepsin-hydrochloric acid we have considerable definite information, partly as the result of experiments with artificial gastric juice and partly from observation on patients and animals with gastric fistula. Nearly all metallic salts diminish the proteolytic action of the ferment quite decidedly, even a few hundredths of a per cent. as a rule producing a noticeable effect. Thus cupric sulphate, lead acetate, mercuric chloride or corrosive sublimate, mercuric bromide, iodide and cyanide, salts of tin, zinc, manganese and iron, all have more or less of a retarding action on the digestive power of pepsin. Iron salts retard the action of the ferment much more than the corresponding salts of manganese. Mercurous chloride or calomel has been shown by Wassilieff to have no action whatever on the ferment. The action of these metallic salts is due, as a rule, to the combination of the metal with the proteid to be digested, forming an indigestible compound, and in part to a direct action on the ferment itself.

We have determined with all of these salts the exact amount of retardation or stimulation of peptic action under definite conditions, but I refrain from troubling you with the figures, especially as I think that the *extent* of action of a given amount of any drug in the stomach is, as a rule, greatly dependent upon the conditions, which are naturally variable, especially the strength of the pepsin-acid solution, the amount and character of the proteid to be digested, etc., and that it is better in applying these results to content ourselves with statements regarding the general nature of the action.

Arsenious acid has a noticeable stimulating or accelerating action on the ferment, the presence of even 0.5 per cent. of this substance causing the pepsin mixture to dissolve a much larger amount of albumen than the pepsin-acid alone will do. Arsenic acid has the same action, only still more pronounced, and the presence of even 2 per cent. of this compound leads to increased proteolytic action. This certainly accords with the generally accepted views as to the influence of arsenic on nutrition in general.

Potassium permanganate has a very energetic action on pepsin, the presence of even 0.005 per cent. in a digestive mixture reducing the action of the ferment to one-fourth the normal. Potassium cya-

[1] Jahresbericht der Thierchemie, 1877, p. 279.

nide and ferro-cyanide have marked inhibitory action on the ferment. Potassium chlorate and nitrate likewise retard the action of pepsin and when present to the extent of 1.5 per cent. both salts reduce the proteolytic action to one-fourth that of the normal ferment. Sodium tetraborate or borax and the chlorides of sodium, potassium, and ammonium all retard the digestive power of the ferment. Sodium chloride, in small amount, however, has a noticeable accelerating action. Potash and ammonium alum both retard digestive action. Sulphates of magnesia and soda likewise retard the action of pepsin, even 0.005 per cent. having a noticeable effect.

Nearly all of the alkaloid salts have more or less of a retarding action on pepsin; thus strychnine, brucine, veratrine, morphine, narcotine, quinine, cinchonine, and atropine sulphates all reduce the action of the ferment, morphine sulphate less than the others.

Bearing in mind that pepsin acts far less energetically with sulphuric and acetic acids than with nitric acid, and with the latter less actively than with hydrochloric, we can easily see that, as a rule, everything else being equal, sulphates will retard the digestive action of pepsin more than nitrates, and the latter more than chlorides, and if we are to apply such results as these to our practice it would be to use chlorides of the alkaloids, where practicable, rather than sulphates, and the same of inorganic salts. To be sure, after a short time, the alkaloid or its salts will have passed into the circulation and the stomach be freed from its influence, but it is well to heed the small things as well as the great, and if we can accomplish the same physiological effect with a chloride as with any other salt and thus avoid or lessen possible disturbance in the stomach it is perhaps as well to do so.

With alcohol we have a double effect to consider; the results of many experiments have shown plainly that the presence of alcohol impedes the proteolytic action of pepsin, even though it is present in comparatively small quantity; but as Gluzinski[1] has shown, alcohol rapidly disappears from the stomach, even 100 c.c. of 25 per cent. alcohol disappearing inside of fifteen minutes. While in the stomach, alcohol undoubtedly retards the solution of proteid matter. Schütz finds that 2 per cent. has a retarding action, while 10 per cent. causes a very great retardation, and 15 per cent. allows only a slight digestive action. Bikfalvi finds similar results, as do likewise Ogáta and Klikowicz. The disappearance of the alcohol, however, is followed by the secretion of an active, strongly acid gastric juice, which continues generally long after the food is entirely digested. Hence, under the influence of alcohol, there is often an accumulation of large quantities of fluid in the stomach, frequently colored yellow by bile. With small quantities of alcohol, therefore, especially with an abundance of food, there is an undoubted stimulation of proteolytic action induced mainly, if not wholly, by the increased secretion of hydrochloric acid. Under such circumstances the first stage of retardation is hardly to be considered, since the alcohol disappears so rapidly. With large amounts of alcohol, the mechanical functions of the stomach are interfered with, and thus the food compelled to remain a much longer time in the stomach than normally.

Beer, wine, and stronger spirits all have retarding action, according to the experiments of Ogáta[1] on a dog with gastric fistula. In the case of beer, Ogáta found that the retarding action was due equally to the alcohol contained in it and to the extractive matters. Even sugar, both grape-sugar and cane-sugar, when taken in quantities above 10 grammes, tends to retard the digestive action of pepsin, but on account of its rapid absorption such action is, of course, only temporary. Soda water, or carbonic acid water, in quantities of 200 c.c. or more, moderately strong infusions of tea and coffee, and 200 to 300 c.c. of spring water, were all found to have no appreciable influence on gastric digestion in the stomach itself.

Sodium salicylate,[2] in doses of from 2.5 to 5 grammes, has a marked retarding influence on the digestive action of pepsin. Chloral hydrate, according to Klikowicz, is without action on pepsin, in doses up to 1 gramme. With 2 to 3 grammes, however, there is noticeable retardation of digestive action, which, with larger doses, becomes still more pronounced.

Among the newer drugs, antipyrin and antifebrin both retard the action of pepsin; antipyrin, when present to the extent of 3 per cent., almost entirely stopping the action of the ferment. Paraldehyde has a very pronounced stimulating effect when present in small quantity, and even 2 per cent. has only a slightly retarding effect. Urethan has a very slight inhibitory effect, while thallin tends to increase the digestive action of pepsin.

In contact with dilute sodium carbonate pepsin is very quickly destroyed, especially at the body temperature. Experiments made with scale pepsin and pepsin extracts from the stomachs of various animals, have shown plainly that destruction invariably takes place in the presence of 0.05 per cent. of the alkali carbonate; hence, when the acidity of the gastric juice is neutralized in the small intestine, and the mixture becomes alkaline, there will be a rapid destruction of the pepsin, aided, as Langley has found, by the trypsin of the pancreatic fluid.

[1] Jahresbericht der Thierchemie, 1886, p. 263.

[1] Archiv f. Hygiene, iii. p. 204.

[2] Klikowicz: Jahresbericht der Thierchemie, 1885, p. 277.

Trypsin, the proteolytic ferment of the pancreatic juice, acts freely only in neutral or alkaline fluids, slowly and imperfectly in feebly acid fluids. Thus, in an experiment on fibrin, a neutral solution of trypsin digested 77 per cent. of the proteid, while the same amount of ferment in the presence of 0.4 per cent. sodium carbonate digested 96 per cent. in the same length of time, and in the presence of 0.1 salicylic acid only 44 per cent. of the proteid. Under ordinary circumstances the ferment appears to act most energetically in the presence of 0.5 per cent. sodium carbonate, but it will act even in the presence of 5 per cent. of the alkali salt. In no case will a salicylic acid solution act as vigorously as a neutral solution of the ferment. It appears, however, that in the acid-reacting fluid, the ferment simply acts more slowly, and if time be given, will ultimately approach the action of the neutral fluid. In such cases, however, the salicylic acid is not free, but combined with the proteid matter; free acids, either mineral or organic, even a few thousandths of a per cent., completely stop the proteolytic action of trypsin, and the addition of dilute hydrochloric acid to a neutral trypsin solution will prevent all proteolytic action, even before the proteid matter is completely saturated; after which the acid quickly causes the death of the ferment. A glycerin extract of the pancreas, for example, on being warmed at the body temperature, with even 0.05 per cent. hydrochloric acid, soon loses its proteolytic action; and, as Langley has shown, the presence of pepsin aids in the destruction. Hence, it is obvious that pancreatic extracts or ferments given by mouth can be of no value whatever, since the proteolytic ferment at least will undoubtedly be destroyed in the stomach before reaching its normal sphere of action.

It seems to me very desirable, however, to be able to use the pancreatic ferments as an aid to pancreatic digestion in the small intestine. The use of such preparations, however, even though fortified by doses of sodium carbonate or bicarbonate, can avail little, since destruction must inevitably follow their entrance into the stomach. I have seen, however, proclaimed somewhere a form of capsule insoluble in dilute acid, but soluble in alkaline fluids, which if truly possessed of such properties could be made an easy means of introducing both the amylolytic and proteolytic ferments into that portion of the alimentary tract where they are capable of performing their characteristic functions. Without some such method of protection it is of course useless to administer trypsin by mouth with any hope of gain to the economy.

As you doubtless know, the action of trypsin is peculiar in that there is no swelling of the proteid matter as in the action of pepsin and acid, but the albuminous substance is eaten into, crumbles, falls apart, and then dissolves. Further, the action of trypsin is peculiar in that it not only converts the albumen into peptone, but also decomposes a portion of the latter with formation of leucin, tyrosin and other products. With pancreatic digestion, the digestive function of the alimentary canal reaches its highest point, and, so far as proteolytic action is concerned, trypsin is undoubtedly more highly organized than its neighbor pepsin; the changes produced by it are more pronounced and deep-seated.

I would be glad to give you some idea of the relative activity of pepsin and trypsin as proteolytic ferments, but this I can hardly do with exactness. In normal digestion the two ferments work under such divergent conditions and the products of their action are so different, that it would perhaps be hardly correct to measure their relative action by the amount of albumen they are capable of dissolving. Again, so far as I am aware, attempts to obtain the pure ferments for pharmaceutical purposes have not as yet been as successful with trypsin as with pepsin. Looked at from the purely physiological standpoint, I am of the opinion, from my own experiments with the two ferments, that pure trypsin will prove to be more energetic in its action than pepsin, but the manufacturing chemists have yet to make a trypsin preparation equal in action to many of the brands of pepsin now in the market.

As a solvent of pseudo-membranes, as in diphtheria and in croup, the digestive ferments are certainly destined to prove of considerable value. Both pepsin and trypsin are recommended, but from a partial study of the various digestive ferments at present obtainable, I am inclined to consider pepsin as the most efficacious. If a trypsin preparation could be obtained in strength equal to many of the preparations of pepsin, I should be inclined to its use for the reason that it acts best in an alkaline medium, that it will eat into and disintegrate the fibrinous membrane rather than first cause it to swell up; that the alkaline secretions of the buccal and other glands will favor its action; that the alkaline fluids possible to introduce with the trypsin may have a slight solvent action in themselves on the diphtheritic membrane and that the ferment will act after the excess of alkali carbonate has disappeared.

These minor advantages, however, are, at present at least, far more than counterbalanced by the much greater activity of the ordinary pepsin preparations. Further, a large number of experiments to demonstrate the influence of various therapeutic agents on the proteolytic action of trypsin have shown me that, as a rule, this ferment is far more sensitive to the presence of foreign salts and drugs than pepsin is, and while this fact need not be considered here, yet it may influence us somewhat in favor of the latter ferment. Trypsin, however, is not much affected by the powerful oxidizing salt potassium chlorate, the presence of even five per cent. of this salt caus-

ing only a slight diminution in the solvent power of the ferment.

As we have seen, the solvent action of pepsin on proteid matter is most pronounced in the presence of 0.1–0.2 per cent. hydrochloric acid, but a thin solution of pepsin with this acid would very quickly rinse down when sprayed into the throat for the dissolving of pseudo-membranes. Admixture of glycerine will, in part, prevent this and keep the ferment for a longer time in contact with the surfaces to be dissolved. Obviously, the operation of painting or spraying must be frequently repeated, in order to keep the surface well moistened with the digestive fluid. Again, since pepsin will not act at all in a neutral or alkaline fluid, it is plainly better to have the digestive mixture at the outset contain at least 0.3–0.4 per cent. of actual hydrochloric acid. This will, in part, provide somewhat for the natural dilution of the acid, and also for the neutralizing action of the saliva and other fluids. Further, acid of this dilution is innocuous, and is a not unpleasant and cleansing mouth-wash. So long as the fibrinous tissue can be kept acid, the solvent power of the ferment will be exerted, and, in this connection, it is to be remembered that there exists a mutual attraction between the acid and the proteid matter of the membrane, by which the acid will be retained longer than by perfectly inert matter. It is to be remembered, however, that such dilute acid has a tendency to swell up proteid matter, and we can conceive of cases where such application might be deemed inexpedient.

The capability of pepsin for dissolving blood fibrin is very great, and at the body temperature its action is quite rapid, and hence one would expect that, under suitable conditions, the fibrinous portion of a diphtheritic membrane would be attacked with considerable rapidity.

The ferment solution, however, should be carefully brought to the body temperature prior to its introduction, and the ferment itself should be of the strongest kind, so as to favor immediate action. The widespread use of pepsin for this and other purposes has led to the manufacture of large numbers of preparations of this ferment, some of which, at least, are of doubtful quality. This fact has been impressed upon me many times in the laboratory, where, for various physiological purposes, commercial pepsin has been employed. Further, during the last six months I have made a comparative study of a number of the more prominent pepsins in the market, determining quantitatively their relative proteolytic action. The general use of pepsin as a remedial agent in gastric troubles may well make us solicitous as to the character and strength of the preparations at our disposal, but as a solvent for pseudo-membranes, where rapidity of action is of the utmost importance and the life of the patient hinges on the result, we should be doubly sure of the character of the ferment employed. The methods at present suggested by the different pharmacopœias for testing the digestive strength of pepsin or pepsin solutions are somewhat variable, both in respect to the strength of acid employed, and in the character and condition of the proteid matter to be dissolved, and it may also be questioned whether the standard adopted is sufficiently high.

Nearly all of the methods now in vogue, either for pharmaceutical or physiological purposes, are based upon the older methods of Bidder and Schmidt, Ebstein and Grützner, and Gruenhagen,[1] and shorn of their details, consist essentially in a determination of the amount of coagulated egg-albumen or blood fibrin which can be dissolved by the ferment in a given time, an excess of proteid matter being present, and the amount of albumen dissolved being taken as a measure of the proteolytic action.

Such a method does indeed show which mixture or pepsin has the stronger digestive action, but does not give a very correct idea of the *relative* proteolytic power, for while the conditions in such an experiment or series of experiments appear to be the same in each case, they are in reality often very unlike. For, as Thompson,[2] in a recent article on comparative pepsin-testing, has well said, the amount of albumen in each test may be the same, and also the volume of the fluid and the amount of apparent ferment, and yet, as soon as digestion commences, the weaker pepsins quickly have more surface of albumen or fibrin to work upon than the stronger, and therefore show better than they should. Again, all who are familiar with pepsin-testing can easily see that the condition of the proteid matter to be acted upon becomes a very important factor in such a test. Whether blood fibrin or hard-boiled egg, the fineness of its division, the completeness of its coagulation, the thoroughness with which it is kept suspended in the digestive fluid, all tend to exercise a very important influence on the final result, and are necessarily a source of frequent error.

Still again, the strength of acid recommended by several of the pharmacopœias is such as to be at least suggestive of the formation of considerable acid albumen, by which the apparent strength of the ferment is correspondingly increased. To obviate these difficulties, and, if possible, to insure more accurate results in pepsin-testing, I have devised the following method, based upon the fact that fluid egg-albumen is essentially of the same degree of digestibility as coagulated albumen,[3] and that the ability to form albumose and peptone is possibly a more accu-

[1] See Hermann's Handbuch der Physiologie, Band 5, 2d Theil, pp. 75–77.

[2] The Druggists' Bulletin, vol. ii. p. 261.

[3] Wawrinski, Hermann's Handbuch der Physiologie, Band v., 2d Theil, p. 83.

rate measure of proteolytic action than the power of simply dissolving coagulated proteids.

The albumen solution is prepared after the manner recommended by Schütz.[1] A quantity of the undiluted white of egg is freed from globulin by the addition of hydrochloric acid of specific gravity 1.12, 4.2 c.c. to 300 c.c. of albumen, shaken gently and after standing some hours filtered. The fluid will then be found to have lost its viscosity, and to be perfectly clear. The acid will likewise have neutralized the alkali carbonate present, and converted the phosphates into acid salts. The solution, however, will not contain any free acid. 10 c.c. contain approximately one gramme of dry albumen; the exact amount can be determined in a sample by coagulation. The solution can be kept for some days, and so used in a large number of experiments.

The testing is conducted as follows; 10 or 20 c.c. of the albumen solution are measured out with a pipette and introduced into a suitable receptacle, a definite volume of pepsin solution, say 50 c.c., previously prepared by dissolving a weighed amount of the pepsin[2] in 0.2 per cent. hydrochloric acid, is added, and enough more 0.2 per cent. acid to make the entire mixture 100 c.c. The fluids are then placed in a bath at 40° C., and allowed to remain there for five or six hours.[3] No stirring is needed, no attention of any kind, other than to keep the mixture at the proper temperature, and there is no possible error from variations in the mechanical condition of the proteid. At the end of the allotted time, the mixtures are heated to boiling and the acid neutralized by addition of the equivalent amount of sodium carbonate, best in approximately a one per cent. solution. The unaltered albumen, as acid albumen, is at once thrown down as a heavy flocculent precipitate, and while still hot it is at once collected on a dried, weighed filter, washed thoroughly with boiling water, and dried at 110° C. From this is easily calculated the amount of albumen converted into soluble products under the conditions of the experiment, from which in turn can be calculated the relative proteolytic action of the pepsin tested. The figures so obtained, if the conditions have been properly arranged, give a much closer approach to the true proteolytic power of a ferment than any similar method with solid proteids, but even this does not tell the whole truth. There is still felt the influence already mentioned of the relative excess of unchanged albumen in those digestions where the ferment action is weakest, and hence, after having used the above method as a preliminary test, it is necessary to have recourse to a modification of the principle made use of by Brücke[1] years ago, and recently recommended by Thompson, of using sufficient of each pepsin or pepsin solution to convert the *same percentage* of albumen into soluble products. In this way only, so far as I am aware, can the true proteolytic power of a pepsin or pepsin extract be determined.

After these methods I have tested the following brands of pepsin, obtaining as a preliminary result the following figures expressive of their relative proteolytic action.

The "pepsinum purum in lamellis" having the highest digestive power, is taken as the standard (100).

	Preliminary test of relative proteolytic action.
1. Parke, Davis & Co.'s pepsinum purum in lamellis	100
2. Fairchild's pepsin in scale	73
3. Scheffer's dry pepsin, concentrated	70
4. Jensen's crystal pepsin	56
5. Ford's pepsin in scales	54
6. North's pure pepsin	36
7. Boudault's pepsin	35
8. Royal Chemical Co.'s pure pepsin	27
9. Scheffer's saccharated pepsin	16
10. E. Merck's pepsin germ. pur. pulv.	11
11. Lehn & Fink's powdered pure pepsin	0

From these data, which are the average of many results, we might infer that Fairchild's pepsin, for example, contains three-fourths as much active ferment as the pepsinum purum of Parke, Davis & Co., and that Ford's and Jensen's pepsins contain approximately half as much true ferment as the pepsinum purum. Such a conclusion, however, would be fallacious, and to obtain the true measure of proteolytic action we must proceed further and determine next the relative amounts of the different preparations needed to produce a like result in each case. After this method we find, for example, that it requires about twice as much of Fairchild's and Scheffer's pepsin to form a given percentage of peptone as of the pepsinum purum, and that of Ford's and Jensen's preparations about three times as much, thus showing that the true difference in proteolytic power is considerably greater than the preliminary results alone indicate. As a final result, then, we may consider the true proteolytic power of the above ferments, compared with the one of highest digestive power, to be as follows:

	Relative, proteolytic action.
1. Parke, Davis & Co.'s pepsinum purum in lamellis	100
2. Fairchild's pepsin, in scales	52
3. Scheffer's dry pepsin, concentrated	48
4. Jensen's crystal pepsin	35
5. Ford's pepsin, in scales	32
6. North's pure pepsin	16
7. Boudault's pepsin	14
8. Royal Chemical Co.'s pure pepsin	9

[1] Zeitschrift für physiologische chemie, Band ix. p. 581.

[2] 50–500 milligrammes of the pepsin in 1 litre of the acid, according to its proteolytic power.

[3] The conditions to be so arranged as not to have more than 50–60 per cent. of the albumen, at the most, converted into soluble products.

[1] Vorlesungen über Physiologie, p. 303.

In considering these results it is to be borne in mind that the same brand of pepsin is liable to slight variations in digestive power, doubtless dependent, in part, upon the condition of the membranes from which it is prepared. Thus, in several instances I have found one or two of nearly the same digestive strength, changing their relative positions, notably Nos. 2 and 3 and Nos. 4 and 5.

As to the actual strength of these preparations, 1 milligramme of the strongest pepsin converted into soluble products 198 milligrammes of the pure dry albumen, which would be practically equal to 2000 parts of fluid egg-albumen.

THE USE OF BARIUM CHLORIDE IN HEART DISEASE.

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ONE of the most recent and one of the best evidences of the value of the study of the action of drugs upon the lower animals is given us by this substance. It will be remembered that Brunton and Ringer, of London, and Kobert and Bary, of Dorpat, have, at various times, published during the last few years their studies concerning the effect of barium on the circulatory apparatus of the frog and dog, and that all of them are in accord in the statement that it slows the heart very greatly, steadies its rhythm, and, at the same time increases the volume of blood thrown out of the ventricle. They have also found that barium increases blood pressure, and Kobert has, by a series of careful experiments, concluded that it brings about this change by an action on the muscular coats of the bloodvessels.

If large doses are used in the lower animals, the heart suffers systolic arrest from over-stimulation, and the strongest irritation of the vagus nerves fails to relax the systolic contraction. Still more interesting is the statement that this failure of the vagi to inhibit the heart is not the result of paralysis of these nerves, but is simply due to the excess of cardiac contractile power. The slowing of the pulse is not due to inhibitory influence, but depends solely upon the stimulation of the heart muscle, although it would seem probable that the vasomotor stimulation, by increasing the arterial resistance, may be, at least, a factor in the reduction of the pulse-rate. At one time, in the dog after large doses there is a period of increase of pulse-rate which is asserted to be due to stimulation of the accelerator nerves.

With this brief statement of the influence of barium upon the normal animal I wish to detail the results which I have reached in the employment of this salt in cardiac disease in man, and I also desire to thank Dr. E. T. Bruen for the opportunity of testing its action in several interesting cases at the German Hospital and to record my obligation to Drs. Steltz and Shurtleff, the resident physicians, for their kindness in keeping a record of the cases.

The first case which I shall detail occurred in my own practice, and was as follows:

CASE I.—A. W., æt. six, girl, has had for some months marked dyspnœa at night and some shortness of breath during the day. She has a history of rheumatism of a mild type, and her maternal grandmother is virtually bedridden with the disease, which is, in her case, of a purely arthritic nature.

The child is fairly well developed for her age, but has the typical dilated nostril and rapid respiration of cardiac trouble. There is no cough. Examination shows a loud mitral systolic murmur which is quite faint over the apex and increases greatly in volume as the ear follows it to the left axilla, while at the angle of the left scapula the murmur is remarkably loud. There has been no dropsy at any time.

Although, so far as I am aware, barium has not been tried in cardiac disease in children I ordered half a drachm of a solution of the strength of one part of barium to 100 parts of water to be given three times a day. From the first, the condition of the child at night was markedly improved, the dyspnœa was much less and the sleep not so restless. The pulse, which had been at 130 per minute, now remained at 80 when quiet, or 100 after exercise, and the area of the thrill over the apex was much less diffused than before. One of the chief evidences of improvement was the absence of that peculiar whirring, tumbling sound, so characteristic of such cases, the murmurs becoming well separated from one another and having a much more definite character.

The continued use of the barium in this case for over two weeks has caused no untoward symptoms, and the child has steadily improved, notwithstanding an attack of mild bronchitis in the meantime.

CASE II.—A man, æt. about thirty-five, was admitted to the German Hospital, suffering from acute dilatation of the heart, the result of suddenly lifting a very heavy beer barrel. His pulse was weak and irregular, and he frequently suffered from attacks of pain closely resembling angina pectoris, with marked expression of anguish. The use of barium chloride in the dose of a teaspoonful of a one per cent. solution relieved him markedly, increased the volume and force of the pulse wave and slowed it to as low a rate as 60 or even 58 per minute.

CASE III. was a man of about fifty, with a double aortic regurgitant murmur, complicated by Bright's disease of a benign type, in so far as the renal signs were concerned. There was some pain over the region of the heart. Under the influence of the barium, in drachm dose of the standard solution, the pulse became much slower and far more forcible.

I offer the following sphygmographic tracing for the purpose of showing what an atypical pulse was brought about by the barium in this case.

While the sphygmograph is virtually useless for most purposes, aortic regurgitation is a lesion which it is generally quick to record.

TRACING 1.

Sphygmographic tracing showing absence of Corrigan pulse in a case of aortic regurgitant and obstructive murmur. Note the sharpness of the upstroke and the lack of sudden fall so commonly seen in such cases.[1]

So far as we were able to discover, the barium caused no renal disturbance and the man expressed himself as very much improved.

CASE IV.—A colored man, æt. about fifty, suffering from aortic regurgitation, producing a very loud murmur, was placed upon the dose always employed by me in these studies. The pulse rapidly became more full and strong, and the comfort of the man was considerably increased.

The following tracing, taken from Case IV., shows much the same characteristics as does Tracing 1, the upward stroke being equally sharp, while the prolongation of the pulse wave is seen to be particularly well marked.

TRACING 2.

CASE V.—Adult, male, with a well-marked mitral regurgitant murmur. The pulse rapidly became slower and the heat more rhythmical under barium chloride. Before the drug was used the morning pulse-rate ranged from 108 to 92, while after the first dose the pulse went down to 72, and remained between this point and 60, until he was discharged from the house.

CASES VI. and VII. consist of two men who suffered from marked weakening and diminution of the pulse wave, and of irregular and excitable heart respectively. In other words, no lesion could be discovered, save that of functional disorder. In both men barium chloride brought about a very rapid improvement in the cardiac state.

A point which seemed to me worthy of the remark was the character of the pulse wave produced. While its volume is increased it does not give that sensation of tenseness to the finger that does digitalis, and the pulse wave seems to be very considerably prolonged; a fact that the sphygmograph also records.

In most of the works on chemistry barium is stated to be an irritant poison, but to produce such evidences of its presence the dose given must be extremely large and *many* times greater than any amount useful for practical medicinal use.

What the verdict of the profession as to the general effects of barium upon cardiac disease will be, time alone will tell, but it is worthy of remark that in this substance we seem to possess a remarkably cheap, virtually tasteless, and very slightly poisonous drug, which, nevertheless, acts as rapidly as digitalis, and does not disorder the stomach.

[1] I am well aware that in some cases of slight aortic regurgitation exercise only will develop the Corrigan pulse. This case, however, had very typical signs of an advanced lesion.

MEDICAL PROGRESS.

Antiseptic Measures Adopted at the New York Eye and Ear Infirmary.—DR. W. F. MITTENDORF gives an account of some of the antiseptic measures adopted at the New York Eye and Ear Infirmary, Thirteenth Street and Second Avenue, which is as follows:

Of the different drugs employed, alcohol, corrosive sublimate, carbolic and boric acids are the principal ones.

Large bottles containing solutions of these chemicals are kept constantly on hand in the operating room. The solutions of corrosive sublimate vary in strength from 1 to 500 to 1 : 5000. The stronger preparations are usually employed to cleanse the operators' hands; the solutions of 1 : 2000 or 1 : 3000 are employed where an inflamed condition of the conjunctiva calls for greater precautionary measures, and the weaker solutions are freely used in cleansing the conjunctival sac both before and after operating in ordinary cases. Unfortunately, the irritating effect of the bichloride of mercury solutions upon the conjunctiva, and at times on the cornea itself, makes the use of this best of all antiseptics rather dangerous at times.

It soon became apparent after its use, in changing the bandage for the first time after cataract extractions, that, although the conjunctiva had been perfectly normal at the time of the operation, the eyes had an angry red appearance, due to injection of the conjunctival vessels, and not infrequently even a mucoid discharge was observed at these times, offering an inviting surface for germs that might be floating in the air and get into the eye at the time of changing and dressing. These facts, and the greater freedom with which milder, non-irritating solutions of other remedies may be used, have led most of the operators to use solutions of boric acid varying in strength from ten to twenty grains per ounce instead.

Carbolic acid is used principally for the cleansing of instruments and the disinfecting of sponges, although very few surgeons employ the latter, pledgets of absorbent cotton soaked in weak solutions of corrosive sublimate or boric acid being almost entirely used at present. Catgut is likewise preserved in carbolic acid. Absolute alcohol is used to immerse the instruments in before the operation, and biniodide of mercury in solution of 1 : 25000, although it enjoyed a great reputation, has only a very limited use at present; it being principally employed to cleanse the anterior chamber of blood and lens particles. Resorcin is very rarely employed by any of the operators.

Heat, dry as well as moist, is at times used for the cleansing of instruments that will not be injured by it,

for instance, those that are used for the removal of foreign bodies from the eye.

For minor operations the eye is washed out with a boric acid solution, applied freely by means of a soft rubber syringe. The operator and the assistants having washed their hands in a solution of corrosive sublimate, the instruments, which have been lying in alcohol for several minutes, are handed to him on a porcelain tray which had been cleansed in a solution of carbolic acid or corrosive sublimate. As soon as the operation is completed and the wound cleansed, the eye is washed again with an antiseptic solution and bandaged, if necessary, by placing over the thin layer of linen which goes next to the eye a sufficient quantity of cotton that had been previously moistened with an antiseptic solution, over this a layer of absorbent cotton, and over this the roller bandage is placed. In major operations, the eyelids and brows are washed with a solution of corrosive sublimate 1 : 2000, and the conjunctival sac is cleansed by washing it with a solution of either boric acid or corrosive sublimate, and some surgeons prefer to have this done several times before the operation in cases where there is a suspicious discharge from the conjunctiva or the tear passages. For this purpose a very much diluted Labarraque's solution of hypochloride of sodium is sometimes employed. Blood from the anterior chamber is usually removed by syringing the eyeball freely with Pannas's or a boric acid solution. The floor of the operating room is of hard wood, and the operating tables, as well as everything connected with the room, are kept scrupulously clean, a condition that should never be lost sight of, as a failure in this respect might counteract aseptic as well as antiseptic measures.—*International Journal of Surgery*, Jan. 1889.

Creasote in Tuberculosis and Catarrhal Affections.—Dr. Seitz, of Heidelberg, finds that, for tuberculosis and chronic catarrhal affections, creasote is best administered when mixed with cod-liver oil, as in the following:

℞.—Creasote . . . . . 38 grains.
Cod-liver oil . . . . . ℥viss.
Saccharin . . . . . 2 grains.—M.

Sig. One to four teaspoonfuls once, twice, or three times daily. For children, smaller doses should be given. —*Therapeutische Monatshefte*, Jan. 1889.

A New Locality for Trephining the Mastoid Process.—Dr. Mitzkuna proposes a new locality for trephining the mastoid process; the point of trephining to be found thus: The ear is drawn forward, whereby a fold (of the skin) is formed just behind the ear; under this fold a flat, bony prominence is felt; between this prominence and the base of the mastoid process is a depression, which depression is the place for trephining. The advantages of this locality over others are:

1. That a chisel can descend from one-fourth to one-third of an inch with safety.

2. That the transverse sinus, which takes a different course in different people, never touches this point.

3. That the thickness of the temporal bone is greatest at this point.

4. The only drawback of this locality is the possibility of going through the external auditory canal, but even this is nothing when compared to the possibility and danger of injuring the transverse sinus.—*Wiener klin. Wochenschrift*, January 17, 1889.

A Rare Cause of Dilatation of the Stomach.—Dr. Otto Pertik, of Buda-Pesth, describes and figures (*Virch. Arch.*, cxiv. 3) a singular abnormality, causing obstruction to the onward passage of the contents of the stomach, and leading thereby to great dilatation of the viscus. The defect consisted in a curious pouch of mucous membrane, shaped like the finger of a glove, about eight centimetres in length and three centimetres wide, which projected into the duodenum, with the upper part of which the posterior wall of the pouch was continuous. This first part of the duodenum was much dilated, and its mucous membrane quite smooth, passing continuously into the mucous membrane which formed the internal as well as the external coat of the abnormal pouch. The mouth of the pouch thus looked upward, and anteriorly it had a free lip or margin, close to which the common bile duct opened, suggesting the possibility of the formation of the pouch in an abnormality of the fold of mucous membrane that occurs at the orifice of the duct. But there was no evidence of gall-stone or any other cause which could have produced it. The probability is that the pouch was formed from one of the valvulæ conniventes, although the precise mechanism of its production is obscure. The entire absence of the folds from the dilated duodenum above the pouch may doubtless be ascribed to the distention which this portion of gut underwent in common with the stomach. In introducing the subject, Dr. Petrik makes some general remarks upon the etiology of gastric dilatation. Exclusive of congenital strictures of the pylorus, etc., he points out that the diminished power of the stomach to expel its contents may be brought about by: 1. Obstruction at the outlet—as from cicatricial or malignant strictures, hypertrophy of the muscularis or mucosa at the pyloris, polypi or tumors in the pyloric region, or external pressure on this part by tumors in the vicinity. 2. An actual loss of muscular power in the stomach, without any obstruction—as following on chronic catarrh, extensive ulceration, carcinomatous infiltration, peritonitic adhesions; and general conditions leading to loss of tone—as anæmia, typhoid fever, phthisis, etc. 3. An excessive amount of contents, as has been observed in the polyphagous, diabetics, and vegetarians; so that the pyloric orifice becomes relatively too small for the ready passage of the bulky gastric contents. The curious case related above falls, of course, under the first head, but the obstruction was in the duodenum, and not at the pylorus.—*Lancet*, Jan. 19, 1889.

Therapeutic Uses of Salicylate of Mercury.—Dr. Pulmert (*Vierteljahressch. f. Dermat. und Syphilis*, Heft 5, 1888), in his researches with salicylate of mercury, used the preparation from the factory of F. Heyden's successor, of Radebeul, near Dresden. It is a white amorphous powder, odorless and tasteless, of neutral reaction, and insoluble in water and alcohol.

To obtain a solution, the author mixed 10 parts of the salicylate of mercury with 15 to 20 parts of chloride of sodium dissolved in water; to this in turn were added 200 parts of water, and a solution obtained by heating the whole over a water-bath. The solution was then diluted

with 3000 parts of water, in which state of dilution the mercury would not separate. The prescriptions used were as follows:

For gonorrhœa:

℞.—Salicylate of mercury } āā 1 to 3 parts.
Carbonate of potassium }
Water . . . . . 1000 parts.

For external applications:

℞.—Salicylate of mercury } . āā 1 part.
Carbonate of potassium }
Water . . . . . 100 parts.

As a salve:

℞.—Salicylate of mercury . . 1 part.
Vaseline . . . . . 30 parts.

As a sprinkling powder:

℞.—Salicylate of mercury . . 1 part.
Carbonate of magnesium . . 20 parts.

For subcutaneous injections:

℞.—Salicylate of mercury } . āā 1 part.
Carbonate of potassium }
Water . . . . . 100 parts.

Internally:

℞.—Salicylate of mercury . . 40 grains.
Powder and extract of calamus, of each sufficient to make 1000 pills.

The results obtained with this preparation in the treatment of gonorrhœa were not as satisfactory as anticipated, the duration of the disease not being shortened by its employment.

Venereal and syphilitic ulcerations were covered with cotton which had been dipped in the one per cent. solution. (To avoid all possible eczema the cotton was not thoroughly saturated.) After two or three days the ulcers took on a healthy appearance, and healed rapidly. Syphilis proper was treated with subcutaneous injections of this preparation, which was used in proportions of 1 : 100. The injection fluid was always freshly prepared before each injection, special care being taken that the same was colorless, and without any deposit, sixteen minims were then deeply injected into the connective tissue. At first the patients would not complain of pain; after the lapse of a few minutes a slight burning sensation made itself felt, which lasted from one-half to two hours. Abscesses, the result of the injections, were never observed. Stomatitis was only observed in one case, and that was after the thirtieth injection had been made. Internally, the preparation was given in pill form. Digestive disturbances were not observed, while the results obtained gave great satisfaction.—*Centralbl. f. d. ges. Therapie*, Jan. 1889.

For Hæmoptysis.—

℞.—Ergotine (Bonjeau) . . 30 to 60 grains.
Gallic acid . . . . 8 grains.
Mint water . . . . ℥iij.
Syrup of oil of turpentine (Fr. Ph.) . . . . ℥j.—M.

This potion to be administered in teasponful doses in the twenty-four hours.—*L'Union Médicale*, Jan, 5, 1889.

Splenectomy in Spain.—DR. MAS, of Valencia, has performed splenectomy with an entirely successful result. This is the second time that the spleen has been extirpated in Spain, one other case having been done by Dr. Ribera Sans. Dr. Más's patient was a married woman who had had children. For some years she had noticed a tumor in the left loin the size of an egg, but after her last confinement this increased in size and caused a great deal of distress. On examination, a large smooth mass, giving the impression of containing liquid, and dull on percussion, could be made out in the left hypochondrium, the usual splenic dulness being absent. An exploratory puncture was made, and a clear, non-albuminous liquid obtained, which when examined proved to be of hydatid origin. The question then arose as to the organ in which it was seated. By a process of exclusion, the spleen was fixed upon as the affected organ, and it was also made out that it was both hypertrophied and out of place. The patient was extremely anxious that something should be done, and Dr, Más, knowing the danger of leaving such a tumor without interference, decided on performing splenectomy, having first satisfied himself that there was no leukæmia. He mentions that he was so affected by the preparations made for this important operation, and by the sight of the assistants who were to help him, that he almost fainted, and so, of course, was in no condition to operate at the time appointed. Three days later, however, he went to the house alone, gave the woman chloroform, lifted her on to a table, and extirpated the spleen, with a hydatid tumor as large as the fœtal head at term, without any skilled assistance. The wound was dressed antiseptically, and the patient made an excellent recovery, returning to show herself in first-rate health seven months afterward. The blood was examined at the time of recovery, and was found to show no signs of leukæmia.—*Lancet*, Jan. 19, 1889.

The Physician's Care of his Hands.—DR. GEORGE MEYER, of Berlin, writes (*Berliner klin. med. Woch.*, Jan. 14, 1889) that in these days when the physician is compelled to wash his hands frequently with disinfectants, they soon get into a deplorable condition. Redness, eczema, and small abrasions of the skin, the consequences of the frequent washing and brushing with antiseptics, are at times so annoying that in order to gain relief, temporary abstinence from the use of antiseptics seems the only remedy. Many methods have been resorted to, to render the hands soft and smooth; but one special method recommended to the author by Professor Liebreich seems especially worth mentioning.

After having washed the hands with soap, and thoroughly dried them, apply a small amount of lanolin; rub this over the entire hand, and remove *any surplus with a dry towel.* A small amount of perfume will render the preparation more acceptable. Thus, the following is very good:

℞.—Lanolin . . . . . 500 parts.
Vanilla . . . . . 1 part.
Oil of roses . . . . . 2 parts.—M.

Or,

℞.—Lanolin . . . . . 1000 parts.
Liquid paraffin . . . 250 "
Vanilla . . . . . 1 part.
Oil of roses . . . . . 2 parts.—M.

For the busy practitioner, such an ointment put up in metal capsules, like oil-paints, would be very useful. The author states that for years he suffered from lobster-red hands, which chapped as soon as the cold weather set in. Since using lanolin his hands have become white and smooth. He has recommended this remedy with similar benefit to actresses whose faces suffered from the application of cosmetics.

The *Archives de pharmacie* gives the following formula for lanolin cream:

℞.—Lanolin . . . . . 5 parts.
Sweet oil of almonds . . 5 "
Precipitated sulphur . . 5 "
Oxide of zinc . . . . 2½ "
Extract of violets . . . 5 "
Extract of alkanna (to give a rose color) . . 9½ " M.

Pregnancy and Operative Surgery; their Mutual Relations.—DR. LOUIS MCLANE TIFFANY, of Baltimore, in an article upon this subject, reaches the following conclusions:

1. Pregnancy is a physiological condition and does not contraindicate a surgical operation.

2. During pregnancy temporary strain may be exerted on some organ, *e.g.*, kidney, inducing impairment of function.

3. A surgical operation upon a pregnant woman is to be conducted so as to avoid inducing abortion, in itself a serious accident.

4. The main cause of abortion, or death after operation is sepsis.

5. The probabilty of sepsis after operation is increased if the patient is suffering from disease either temporary or permanent.

6. Abortion may result from shock.

7. Hemorrhage does not seem to induce abortion.

8. Union of fracture may be retarded by pregnancy.

9. Recorded cases show that the unborn child receives no evil impress when the mother is subjected to operation.

10. When a surgical operation upon a pregnant woman is under consideration, the function of all the patient's organs must be carefully investigated and regulated. An operation then conducted antiseptically may be expected to result as though pregnancy were not present.—*Maryland Med. Journal*, Jan. 26, 1889.

Local Treatment of Diphtheria with Salicylic Acid.—DR. A. D'ESPINE, in a paper upon this subject, concluded as follows:

1st. From the experiments made it is safe to say that salicylic acid, already in dilutions of 1 : 2000, is an excellent parasiticide of the bacillus of diphtheria.

2d. Its entire harmlessness in such doses permits its being used without fear, which cannot be said of carbolic acid or sublimate. Irrigations of salicylic acid should also be used as a prophylactic remedy in diphtheria, in all simple throat affections, which in time of an epidemic might be the means of receiving the bacillus of Löffler. This treatment should be especially applied to all scarlatinal sore throats, which, owing to the streptococcus of Heubner, might easily become the seat of necrotic pharyngitis or true diphtheria.

The author only claims originality for the large quantities of liquid used in the irrigations, which are repeated hourly until an improvement in the existing conditions is observed. It is evident that salicylic acid cannot prevent any accidents which are the outcome of an enfeebled constitution; hence the necessity of an early diagnosis of diphtheria becomes the more apparent.—*Revue médicale de la Suisse normande*, Jan. 20, 1889.

Action of Sulphonal.—At the clinic of PROFESSOR MEYNERT, at Vienna, sulphonal was administered to forty patients in 2 to 20 doses; the results obtained were good in 64.5 per cent. (that is, they obtained from six to eight hours' sleep), less good in 14.5 per cent. (sleep being frequently interrupted), and bad in 20.9 per cent. (little or no sleep being obtained). As a rule, the patient fell asleep from one-half to two hours after the preparation had been administered; evil after-effects, with the exception of an occasional headache, or a slight dizziness on awaking, were not observed.—*Wiener klin. Wochenschrift*, No. 2

Treatment of Migraine.—

℞.—Sulphate of quinine . . . gr. vj.
Crystallized salicylate of soda . " vj.
Chlorhydrate of morphia . . " ¼.—M.
For one powder.

Administer one powder every hour until four have been taken; then immediately after the last powder administer $\frac{1}{250}$ of a grain of aconitia. Generally from one-half to one hour from the beginning of this treatment the paroxysm will disappear.—*L'Abeille médicale*, Jan. 21, 1889

Treatment of Eczema of the Genital Organs.—

℞.—Oleate of cocaine . . . gr. 7 to 15.
Olive oil . . . . . ʒss.
Lanolin . . . . . ʒijss.—M
Apply twice daily.
—*Deutsche med. Wochenschrift*, Jan. 17, 1889.

Inoculation of Syphilis by Tattooing.—SURGEON F. R. BARKER reports that out of fifteen soldiers tattooed by one man eleven contracted syphilis. The men were tattooed at various dates during the year 1888, and the periods of incubation varied from eighty-seven to thirteen days. The operator was examined and found to have mucous tubercles in his mouth, a coppery rash on the chest, a scar on the penis, enlarged glands, etc. He admitted that he had mixed his colors with saliva and had also put the tattooing needles in his mouth.—*London Medical Recorder*, January 21, 1889.

Ingluvin in the Vomiting of Pregnancy.—DR. POPP (*Pester med. Presse*, No. 40, 1888) reports having achieved considerable success with ingluvin in the vomiting of pregnancy. Having a very obstinate case, upon which he had exhausted the entire resources of the pharmacopœia, he administered three times daily, one-half hour before mealtime, eight grains of ingluvin, and directly afterward two tablespoonfuls of a one per cent. hydrochloric acid solution. An improvement was observed after a few doses had been taken, and a cure effected after the treatment had been continued for three weeks.—*Deutsche med. Wochenschrift*, Jan. 17, 1889.

THE MEDICAL NEWS.

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SATURDAY, FEBRUARY 16, 1889.

TUBERCULOUS MEAT AND MILK.

THE College of Physicians of Philadelphia, at its meeting held last week, discussed the subject of tuberculous meat and milk in their relations to the public health. The subject was introduced by Dr. George Strawbridge, who, in a paper containing a great array of statistics collected in Europe and in the United States, showed that tuberculosis is a common disease in cattle, especially in high-bred cows, and that under certain conditions it may be communicated to man by consuming the flesh and milk of animals suffering from this disorder. These facts, which are of universal importance, coupled with the discovery that no official inspection of meats and a very limited inspection of milk have ever been conducted in Philadelphia, should arouse intense popular interest in behalf of measures of protection against an apparently formidable source of a disease which is amongst the worst scourges of the human race.

It was the purpose of the lecturer to elicit, by a thorough discussion, the deliberate opinion of the College on this subject in the form of propositions which would serve as the basis for necessary legislation. These propositions were referred to a committee to report upon at the next stated meeting, when final action is expected to be taken.

The Congress on Tuberculosis of Man and Animals, held in Paris, July 25 to 31, 1888, the deliberations of which were fully reported at the time in THE NEWS, was perhaps the most important convention of the kind ever held. The conclusions adopted were accepted as definite and authoritative by the French government, which immediately adopted regulations to be enforced for the prevention of the transmission of tuberculosis from animals of the bovine species. Cattle are to be placed under the supervision of sanitary veterinary surgeons, and whenever found to be tuberculous are to be isolated and sequestrated, and when destroyed, the killing must be done in the presence of the officer. Meats from tubercular animals must be destroyed when the disease has become generalized, and also when the lesions are localized, if they have invaded the greater part of an organ, or appear in the form of eruptions on the chest-walls, or abdominal cavity. The sale and use of milk from tubercular cows is forbidden, though when boiled it may be used on the spot for feeding animals.

Dr. Strawbridge produced letters from veterinary experts and statistics which enabled him to state, that at least two per cent. of the animals of the bovine species in Pennsylvania are tuberculous. No official measures have ever been taken for preventing the sale and use of the meat and milk of such animals which are capable, under certain conditions, of communicating the disease to man. The danger of infection may be averted by thoroughly cooking these articles of food, but it requires a temperature of at least 185° F. to render them innocuous. Underdone meat is not heated beyond 122° or 140° F., and the practice of boiling milk is not the most common.

The danger having been pointed out, the next step is to determine upon the best measures of prophylaxis. Nothing should be left to haphazzard. The radical measures adopted by the French government are based upon well-ascertained facts, and would seem to meet the indications most completely.

This subject suggests a reference to the broad question of animal sanitation in its relations to the public health. It is a well-known fact that domestic animals are subject to numerous contagious and infectious diseases, some of which are intercommunicable between animals, whilst others are communicable to man. These diseases have at times proved very destructive, causing immense agricultural and financial losses to the country. The vast importance of a speedy extinction of these plagues has been recognized, and measures have been taken by the general government and by State authorities for

accomplishing this object, but these have been primarily adopted for the protection of agriculture. With some notable exceptions, no legislation has been adopted with the avowed purpose of protecting the public health. The meat from diseased animals is constantly exposed for sale in our markets, and statistics are not wanting to prove that the flesh and milk of diseased cattle are dangerous as food for human beings.

Professor Law states that malignant or contagious anthrax in cattle and sheep has become increasingly frequent throughout most of the United States in the past few years. The disease known as malignant pustule in man is acquired by consuming the flesh and milk of cattle thus affected. The resting spores of the bacillus anthracis may survive 300° F., and therefore ordinary cooking does not destroy their virulence.

Epidemic pleuro-pneumonia is also a common disease. Whilst doubt has been expressed as to the effect of this disease upon the meat, Gamgee and other excellent authorities affirm that the flesh of cattle thus affected produces disease in man.

The parasitic diseases of animals are not uncommon. The trichina in pork, the cysticercus cellulosæ in pork which produces the tænia solium in man, the cysticercus in cattle which produces the tænia mediocanellata in man, the cysticercus in sheep, the echinococcus in cattle derived from the tænia echinococcus in the dog, and communicated to man, and the rot in sheep, or fluke disease, caused by the distoma, are sources of infection which should be guarded against.

The milk, butter, and cheese from cows suffering with the foot-and-mouth disease may communicate the disease to man.

Facts and authorities might be stated to show how common is the existence of dangerous communicable diseases among animals, and that many of these affections can be transmitted to man, either by accidental inoculation or by consuming the diseased flesh and milk. It is time that concerted action should be taken for the protection of the public health against these sources of injury, as well as for husbanding the agricultural resources of the country. Local and State action is only of limited benefit. The subject is of so momentous a character as to demand the intervention of the national government, and it would appear to be a wise course to delegate the control of animal sanitation, especially the animal contagia and parasites which affect man as well, to a national board of health clothed with ample authority to investigate these diseases and apply measures for their restriction or extinction.

SOZOIODOL.

This substance differs in one respect from other antiseptics, so far as our patriotism is concerned, in that it was first made and employed by one of our own countrymen in San Francisco; but at that time the preparation of it was so imperfectly carried out that foreign matters made it too irritating for general use and it was discarded, only to be better prepared and more widely used in Germany, some years later.

In the *Therapeutische Monatshefte* for January, 1889, Nitschmann, of Erfurt, gives his experience, and that of others, in the use of sozoiodol. He finds that it is of value as an antiseptic and disinfectant in wounds which are in a diseased state, and in acute stomatitis and pharyngeal catarrh he employs it in the form of a five per cent. watery solution. He has also found it useful in acute, in purulent conjunctivitis, and in blennorrhœa neonatorum in the proportion of two parts of sozoiodal to thirty parts of water.

He treats urethritis, of a specific type, by employing the preparation known as zinc-sozoiodol in a two per cent. solution, and he also finds it of value in mild and malignant vaginitis, first using, by means of a speculum, an application of pyroligneous acetic acid or nitrate of silver.

In the treatment of gynecological cases, particularly in catarrh of the cervix uteri, Nitschmann uses sozoiodol in the form of a powder applied by means of a tampon with good results, and it would seem as being worth a trial in many other states of the mucous membranes than those just named.

DR. JOHN CALL DALTON.

The profession throughout the country will learn with the deepest regret of the death of Dr. John Call Dalton, which occurred at his residence in New York City last Tuesday.

Dr. Dalton was born at Chelmsford, Mass., on February 2, 1825, was educated at Harvard University, from which institution he received the degree of B.A. in 1844, and of M.D. in 1847. He early devoted himself to the study of physiology, and in 1851 his essay on the "Corpus Luteum of Pregnancy," which obtained the prize offered by the American

Medical Association, at once established his reputation as an able investigator in physiology. Shortly afterward he was appointed Professor of Physiology in the University of Buffalo, and, it is said, was the first in this country to use vivisection in class teaching. He resigned this chair in 1854 to accept a similar one in the Vermont Medical College, and three years later he accepted the chair of physiology in the Long Island College Hospital, and in 1855 he accepted the same chair in the College of Physicians and Surgeons of New York, which he held until 1883, when he retired from active teaching and accepted the Presidency of the College.

During the war he served in the army, first in April, 1861, as surgeon of the New York Seventh Regiment, and in August he was appointed brigade surgeon, and served until March, 1864, when he returned to New York City and reëntered upon his duties at the College of Physicians and Surgeons.

Dr. Dalton was a member of the National Academy of Sciences and of numerous medical societies. He was president of the Section of Physiology of the International Medical Congress held at Philadelphia in 1876.

Dr. Dalton was an earnest student and able writer. His "Treatise on Human Physiology," the first edition of which was published in 1859, has always justly enjoyed marked popularity, and was at once adopted as a standard text-book in all of our medical schools; it has gone through seven editions, the last having been published in 1882. He also wrote a "Treatise on Physiology and Hygiene for Schools" etc., which was published in 1868 and has been translated into the French Language; "The Experimental Method in Medicine;" "Doctrines of the Circulation;" "The Topographical Anatomy of the Brain," a beautifully illustrated atlas of which only two hundred and fifty impressions were printed, and copies of which are now highly prized.

In Dr. Dalton's death the profession has lost a member of the highest honor and integrity and one who by his character as a man and ability as a thinker, teacher and author, has largely contributed to the elevation of American medicine.

THE Secretary of War has issued an order relieving Surgeon George M. Sternberg from duty at Baltimore so as to afford him an opportunity of continuing his researches into the nature of yellow fever, and for this purpose Dr. Sternberg will visit Havana and other points in Cuba. He began these investigations over a year ago under a special act of Congress and visited Cuba and Brazil. Later he returned to Florida during the epidemic in that State and visited the infected locality. He will submit the results of his researches to the Secretary of War in a report that will probably be made next fall.

SURGEON-GENERAL JOHN B. HAMILTON announces that in view of the recent enactment of a law prohibiting any original appointments in the Marine-Hospital Service, except to the rank of Assistant-Surgeon, thereby practically creating a life-tenure in the office of Supervising Surgeon-General, he has resigned the editorship of the *Journal of the American Medical Association*, his resignation to take effect with the issue of February 9th.

THE College of Physicians of Philadelphia have awarded the William F. Jenks Prize for the best essay on the "Diagnosis and Treatment of Extra-uterine Pregnancy," to Dr. John Strahan, of Bedford, Ireland. The prize amounts to the sum of two hundred and fifty dollars. The successful essay, which we understand is quite lengthy, will be published in the *Transactions* of the College.

WE regret to learn that, on account of ill-health, Dr. Ménière has been obliged to suspend temporarily the publication of the *Gazette de Gynécologie*.

REVIEWS.

THE PROPRIETY OF SURGICAL INTERFERENCE IN PERFORATING TYPHOID ULCER. By J. EWING MEARS, M.D., of Philadelphia. Pamphlet, 8vo. pp. 14. Philadelphia: 1888.

This interesting pamphlet is a reprint from the *Transactions of the American Surgical Association* for 1888. The author submits the following propositions in the hope that the experience of the future may prove that the limits of surgical art can be so extended as to include in the list of justifiable and successful operations, laparotomy in certain forms of perforating typhoid ulcer.

1. Surgical interference is not justifiable and should not be instituted in cases of typhoid fever in which perforation occurs when the infective process is at its height. This conclusion is based upon our knowledge of the morbid conditions peculiar to and present in the disease, and the effects produced by them upon the general system.

2. In mild cases of the disease, in which the pyrexia has not been of high grade and in which perforation occurs at the end of the third week, or later, when the

stage of convalescence is fully pronounced, laparotomy may be performed. Surgical interference in cases of this character is advocated with the hope that if the method of operation suggested by Lücke—laparotomy with the creation of an artificial anus—be adhered to, success may be accomplished.

3. Rapidity in operation will be an essential factor in the achievement of success, through which prolonged exposure of the cavity will be avoided and shock greatly lessened. Median incision having been made, the hand should be passed to the position of the ileo-cæcal junction, the ileum seized, drawn into the wound, and examined as it is slipped through the hand, which should remain in the cavity. The perforation being found, the portion of intestine including it should be quickly sutured to the edges of the abdominal incision, the sutures being introduced at sufficient distances from the ulcer edges to insure inclusion of healthy tissues. Hot antiseptic solutions should be then poured, in sufficient quantity, into the cavity, a glass drainage tube carried to the floor of the pelvic cavity, and the wound closed. Prolonged "toilette" of the peritoneal cavity, as it is generally understood, should not be made while the cavity is open. Irrigations through the drain tube should be made as soon as the cavity is closed, and should be repeated at such intervals as the surgeon may deem proper. So extremely rare is the occurrence of double or multiple perforation that, after the discovery of one opening, further search of a critical and prolonged character may be safely omitted. As in the cases in which operation is deemed advisable, the perforation is not due to the extension, *per se*, of the ulcerative action, but to what may, almost always, be designated as a mechanical cause, the absolute quietude of the patient, which must be enforced, as well as the rest secured to the intestine by the operation for production of artificial anus, whereby the free escape of the feculent contents and gas is facilitated, will contribute largely to the prevention of further perforations. Should the patient survive, relief from the artificial anus can be obtained by operation.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eighty-third Annual Meeting, held at Albany, February 5, 6, and 7, 1889.

THE PRESIDENT, DR. SAMUEL B. WARD, of Albany, called the Society to order, and made a brief inaugural address.

DR. B. F. SHERMAN, after the transaction of some preliminary business, offered the following resolution in reference to

MALPRACTICE SUITS,

which was adopted.

Whereas, There is now a bill before the Legislature which requires those commencing suits for libel against publishers and editors to give bail for all costs; and

Whereas, Ninety per cent. of all suits brought for malpractice are for blackmail, therefore be it

Resolved, That the Committee on Legislation be hereby instructed to use all honorable means to have this bill amended so as to include cases of malpractice.

A number of papers were then read, of which our special correspondent has sent us abstracts as follows:

DR. JAMES B. HUNTER, of New York, read a paper on

THE TECHNIQUE OF VAGINAL HYSTERECTOMY.

Two points must be considered in the discussion of this subject, one as to the immediate result of the operation, and the other as to its permanent result. Both must be good in order that the operation may hold position as a justifiable surgical procedure. It has been decided for some time by comparative statistics that the immediate results of vaginal hysterectomy are not worse than those of many other major surgical procedures, and the recently published statistics of Secheyron seem to show that the permanent results in many cases are also good. The dangers of the operation arise from shock, hemorrhage, peritonitis, and septicæmia. As to the first of these, rapidity of operation seems to lessen the danger of shock in this as in other serious gynecological operations. The dangers from hemorrhage have also been greatly reduced since the introduction by Péan of hæmostatic forceps for clamping the broad ligaments. These are not only far easier of application than ligatures, but they are also more efficient and safer. In twelve hysterectomies, in which the clamp forceps have been used by the author, only two deaths have occurred.

The details of the operation, as given by the author, did not differ materially from those which are given by various operators. He advocated the use of creolin in a two per cent. solution as a dressing, and also the use of creolin gauze as a vaginal packing subsequent to the operation. If the ovaries or tubes came into view during the operation, they might be removed, otherwise they need not be disturbed. If clamp forceps were used, ligatures were seldom necessary, and as many as fourteen clamp forceps could be used if conditions required them. It was important to tie the handles of the forceps together as a safeguard against slipping. The gauze was usually left in the vagina four days, and then the forceps might also be removed. The author did not think it necessary to close either the vaginal or the peritoneal wound, and additional time would thereby be saved. In none of his cases had there been either hemorrhage or infection. He had not used the cautery as a hæmostatic, as he had never found it necessary; there was also some danger in its use to the intestines and other structures.

There was little discharge from the wound during the first week, and still less during the second. Patients were sometimes able to be about by the beginning of the third week. The hæmostatic forceps favor drainage, there is less danger to the ureters than with the ligatures, and they enable one to destroy diseased tissues which are not always accessible to the ligature. The longest forceps are not always the best, those with a bite of an inch and a half are sufficiently long, and one need not try to take in too much tissue with a single instrument.

DR. THOMAS A. EMMETT believed that an important point to consider was the duration of immunity from a recurrence of malignant disease which was to be obtained by such operations. If immunity could be obtained from two to four years, as it frequently was, he believed the operation was justifiable. Personally he was inclined to favor the supra-vaginal amputation of the cervix as sufficiently radical, and had obtained good results from such operations. He thought the radical

operation was indicated in sarcoma, while it was sometimes questionable in carcinoma. He was much in favor of an abdominal operation for extirpation of the uterus, a modification of Freund's operation, which had recently been performed by Dr. L. A. Stimson.

DR. ANDREW F. CURRIER thought that there must always be a difference of opinion among operators as to a preference for a partial or a complete removal of the uterus for cancer. One's conduct in such matters would be largely influenced by personal experience and predilections. Another indication for the operation of hysterectomy was obstinate prolapse of the uterus, especially in women who had passed the menopause, and in whom other measures for the relief of this condition had failed. The point which was advanced by the author of the paper as to the value of the hæmostatic forceps in shortening the duration of the operation of hysterectomy, was a valuable one, and one which could be readily appreciated by one who had experienced the great difficulties which were sometimes encountered when the ligature was used. As to the instruments which were useful in performing the operation, he favored those which were used by Martin, viz., the perineal retractor of Simon, lateral retractors, and a volsella in each lip of the cervix for drawing down the uterus.

DR. ANDREW F. CURRIER, of New York, read a paper entitled

THE DISORDERS OF MENSTRUATION,

which will appear in full in our next issue.

DR. A. JACOBI had seen many cases of so-called vicarious menstruation in young girls, manifested especially in the form of nose-bleed. He did not think this bleeding was always due to disorder of the pelvic circulation. It frequently came from heart weakness, especially in the case of schoolgirls who sat for hours at their tasks. He believed that in such cases treatment should be directed to the condition of the heart, and digitalis, sparteine, or strophanthus, in suitable doses, should be prescribed. He asked the author what he would do to restore, or to establish, the menstrual flow in such cases.

DR. C. E. LOCKWOOD, of New York, thought the special point in the paper was the improvement in the nomenclature of the symptoms heretofore expressed by the old terms amenorrhœa, dysmenorrhœa, menorrhagia, and vicarious menstruation. These have been loosely used to express a number of symptoms of, in great part, general and local structural, and in small part, functional, disease. They are largely symptomatic, and the names are unmeaning and indefinite in many connections in which they have been used. Etymologically, amenorrhœa means absence of the monthly flow, but it has been used not only in this signification, but also as expressive of defective or scanty and vicarious menstruation. By menorrhagia, is understood profuse monthly flow. Any suggestion which will reduce these terms to greater definiteness and system, and convey to the mind the condition and its etiology, is of value.

DR. HENRY C. COE, of New York, read a paper entitled

THE EARLY RECOGNITION OF CANCER OF THE CERVIX UTERI.

(See page 169.)

DR. A. L. LOOMIS, of New York, read a paper entitled

MANAGEMENT OF CARDIAC DILATATION BASED ON ITS ETIOLOGY.

In the diagnosis of heart disease, twenty years ago, murmurs were considered all-important elements. These and the various morbid changes of the valves by which they were caused, were the principal factors which were taken into consideration. Now they are only considered as adventitious sounds, which indicate the seat of certain valvular lesions. As long as the rhythm of the heart remains normal and the walls are in a normal condition, it is now considered that a heart is not in a serious condition. The heart may be hypertrophied, but this condition is compensatory, and indicates that the danger-line has not yet been reached. The tissues of the heart must be healthy, also the nerves by which it is supplied, and the blood which flows through it must also be healthy, in order to the well-being of the organ, and when these conditions are deviated from, there is weakening of the walls and dilatation. Serious heart disease, too, cannot be divorced from other diseased conditions with which they may be associated, such as general impaired nutrition, etc., conditions which are so commonly seen in poor workingwomen living on a diet of bread and tea. Such persons demand a change of diet, many hours of daily exercise in the open air, and suitable doses of arsenic.

In those cases in which dilatation results from softening of the cardiac muscle in convalescence from severe disease, patients should be kept in bed in the recumbent position, no exciting surroundings being allowable, and suitable doses of quinine and strychnia should be administered as long as the irregularity of heart action continues. In dilatation from fatty softening of the heart, angina and digestive disorders are frequent accompaniments; hence, the functions of the liver and stomach must be carefully guarded. Such cases demand spare diet and rest; or if exercise is indicated, it must be of the gentlest character. In their treatment calomel is appropriate, also arsenic, strychnia, and iron, the latter being given alone, never in combination. Digitalis should never be given. In an emergency a hypodermatic of morphia will be of great temporary benefit, also bichloride of mercury in doses of one-sixtieth of a grain. If Graves's disease is present, graduated doses of strychnia will be of great service. In the dilated heart which proceeds from excessive venery, the speaker had found good results from the daily use of thirty to sixty grains of bromide of potassium.

In all cases the life and habits should be carefully regulated, without the use of medicines. As long as hypertrophy continues, and when the venous system becomes engorged, large doses of the tincture or the infusion of digitalis should be used. This drug is always indicated as soon as loss of compensation with its attendant symptoms is present, for by this means the arterial pressure will be raised. It should be continued as long as the flow of urine is abundant, but it should be stopped when the urine begins to diminish. The quantity to be given will vary with the susceptibility of the patient, and the largest quantity should be given at bedtime. Squill increases the action of digitalis more than any other drug which can be combined with it, and its combination with calomel is also useful. The other cardiac tonics, strophanthus, convallaria, and adonidine,

do not have a diuretic action, and are not so useful as digitalis.

Dilatation from obstruction of the pulmonary circulation is always in the right heart, and is sometimes relieved by the use of leeches over the sternum, wet cups over the right lung, or the abstraction of ten or twelve ounces of blood from the arm. Atheroma of the heart walls, the aorta, and the coronary arteries is most frequently met in women, and when followed by dilatation is sometimes due to excessive recoil of the aorta. Remedial agents for this condition must be used promptly during the compensatory stage, and the bromide of potassium may be given with good results. In dilatation from venticular hypertrophy and arterial sclerosis, improvement of the blood must be sought by a vegetable and milk diet, by citrate of potash, colchicum, buchu, and other agents, which will assist in the removal of the nitrogenous matters from the body. If this is not successful, temporary relief may be obtained by the use of full doses of digitalis, but the usual course in such cases is rapidly downward.

DR. A. JACOBI thought there was one class of dilated hearts which had not been referred to by the author, namely, that which occurred not infrequently in young children. In the newborn infant the aorta is normally small. If the pulmonary artery is too small, the body would have too little and the heart too much blood. It would thus be over-nourished and a pathological condition would result. In such cases the arteries over the entire body may also be too small. This condition not infrequently results in general anæmia, chlorosis, and pernicious anæmia, and at the autopsies of such cases the heart is found dilated. As to the value of digitalis for dilatation of the heart, this drug is not simply a heart stimulant, it also nourishes the heart muscle. Small doses of it may be given for very long periods when there is a condition of general debility. Sparteine is also very useful; it acts promptly, and may be combined advantageously with digitalis.

DR. GEORGE M. STERNBERG read a paper on

THE ETIOLOGY OF CROUPOUS PNEUMONIA.

Acute pneumonia is now considered by the best authorities as an acute specific disease, one in which there is something special in the inflammatory process. The object of the author is to bring forward the history of the experimental evidence which bears upon this view of the etiology of the disease. The microörganism of the disease is widely diffused and is probably not acquired by personal contact. The disease may occur, however, as an epidemic in prisons or barracks, in villages or in single houses, just as is the case with cholera or yellow fever. The cases may bear no especial relation to each other, however, but simply have a relation to a common environment, like exposure to cold, alcohol, etc. The disease prevails over a wide area of the earth. Its direct transmission to those who are brought in contact with it, as attendants upon the sick, is probably of very rare occurrence. The specific microörganism is found in the buccal secretion of healthy individuals. It might be objected that this makes the argument concerning its pathogenic character untenable, but with our present knowledge this does not follow, for pus cocci, also the cocci of tetanus, are found among the healthy, but produce disease only under certain conditions. Traumatism is one of the essential factors to the production of this disease, the bacillus being also a component factor, and it is necessary that it be introduced into a favorable location, there being a wide difference in the susceptibility of the tissues to invasion. Other factors may be reflex vaso-motor paralysis of a part of the lung, which enables the microbe to do its work, also many changes in the cocci themselves which may change their pathogenic activity.

The coccus of pneumonia was described in 1882 by Friedländer, and in the same year by Leyden and Gunther. Matri published observations in 1883; and the same coccus was also found by him and others in different diseases. In 1882, Friedländer described the results of his experience with blood cultures, upon which the fact of the oval pneumococcus was established. Talamon also described to the Anatomical Society of Paris, in 1883, a few days after Friedländer's paper was read, a lanceolate coccus which he obtained from pneumonic exudate after death, or from blood drawn during life. He produced genuine lobar fibrinous pneumonia with pleuritic and pericardial complications with it in rabbits. This coccus is not identical with that which was discovered by Friedländer, but with one which was discovered by the reader from his own buccal secretions in 1880, and which was named by him *micrococcus Pasteuri*. He inoculated rabbits with it at that time with fatal results, but did not discover that his coccus differed from that of Friedländer until 1885. Fränkel found that the coccus of saliva (M. Pasteuri) more frequently caused pneumonia than that which was obtained from rusty sputum.

Weichselbaum's *diplococcus pneumoniæ* is also found to be a more frequent cause of pneumonia than is that of Friedländer. Gamaleïa concluded from extensive experiments in mice, and also from a review of the entire subject, that pneumonia is *usually* caused by the *micrococcus Pasteuri*. The author believed that many reports concerning the micrococcus of Friedländer should be credited to the *micrococcus Pasteuri*; for the two are entirely dissimilar as is shown by staining, Gram's method resulting in a discoloration of the former but not of the latter.

Experiments which have been performed with the *micrococcus Pasteuri* upon dogs and sheep were also described. The disease which was produced in them was far less fatal than in mice, showing far less insusceptibility to its virulence. In this respect pneumonia in dogs and sheep is similar to that disease in human beings. The probability is that in these higher animals the coccus does not invade the blood extensively. The author's early experiments, which were abundantly verified and published before those of the others mentioned, entitle him to the credit of the discovery of this microorganism.

DR. WILLIS E. FORD, of Utica, then read a paper on

GALVANISM IN GYNECOLOGY.

If a constant current of electricity be passed through living tissue certain changes are brought about, due partly to chemical decomposition and the separation of the fluids of the tissues and partly to a change in the nutritive processes produced by polarization of the ultimate molecules of matter. The results obtained depend wholly upon the character of the current used. From

the study of electricity itself and a proper appreciation of the various qualities of a current as much may be expected as from the study of the morbid conditions for which it is prescribed. Dynamic electricity of great volume or ampèrage is capable of great destructive power just in proportion to the quantity of zinc acted upon within the battery. While such a current may be capable of producing cautery effects it will not push its way through dense tissue for any distance. For this purpose a number of independent elements connected up in a series is necessary. The voltage or the pressure power of a current is as important therefore in therapeutics as is quantity or ampèrage. It has been found that a current that is strong enough to push its way through a fibroid tumor of the uterus as large as a cocoanut, must possess the pushing power or tension of from twelve to sixteen volts. If, therefore, the battery used for the purpose of dispersing fibroid tumors has this requisite voltage, the ampèrage may vary within certain limits and yet good results be obtained. A battery with large cells gives no greater voltage than a battery with small cells and small elements, while the ampèrage of the battery depends wholly upon the size of the elements used.

The author was convinced that one of the reasons why galvanism is not more generally and successfully used, is that portable batteries or batteries having but a single fluid, as they are constructed by instrument-makers, are wholly inadequate for the purpose. The two-fluid batteries, on the other hand, are so expensive that few practitioners possess them. The ordinary bichromate of potash battery, which is unquestionably the best form of battery, will answer every purpose if the cups in which the elements are immersed are sufficiently large that the current may not run down. Such a battery of fifteen cells holding a quart each, with some simple contrivance by which the zincs and carbons can be readily lowered into the fluid, makes a most perfect instrument for gynecological practice. The ampèrage, or volume of a current, is easily regulated by the depth to which the zincs and carbons are plunged in the fluid, while the tension, or voltage, or pressure of the current is regulated by the switch board, depending entirely upon the number of cells used.

The foregoing description has been thus minute, since the results in the practice of the author have seemed to depend largely upon the quality of the current. A galvanometer is of but little service, while a set of Brenner's resistance coils attached to the cabinet batteries is rarely used, the milliampèremeter being the chief guide. The volume of the current may be so large, however, that the latter is not always a safe guide; for instance, if a current from twelve cells is used, and the elements have an exposure to the fluid of forty square inches each, great care must be taken to prevent the vaginal electrode from cauterizing the tissue, even if the milliampèremeter marks but 100 or 150. There seems to be no guide, other than experience, regarding the safety of currents of large ampèrage. Where twelve or more such cells are used, the author had found it unsafe to have more than twenty square inches of zinc surface exposed in each cell, if the fluid is fresh. If pain is produced by the electrode in the vagina, it is evident that the limit of intensity has been reached. If the electrode is held firmly against a fibroid mass, and the voltage is increased until the milliampèremeter marks 150 to 200, and there is still no pain in the vagina, no harm will be done,

In removing the products of circumuterine inflammation, a current of large ampèrage will be the most efficient—that is, about 100 milliampères. The author's first paper upon the effect of galvanism in peritoneal adhesion, was published in the *Medical Press of Western New York* for April 1888, and stated what was believed to be entirely new at that time, namely, that peritoneal adhesions about the pelvic organs, and even about the abdominal viscera, can be effectually removed by means of the stronger galvanic current. These conclusions were reached from the behavior of fibroid tumors under treatment in cases in which there had been localized peritonitis with fixation both of the tumor and of the adjacent organs. Pain was speedily relieved, and the tumors became movable, even before there was any perceptible diminution in their size. This occurred so uniformly that it seemed evident that galvanism must be an efficient agent for the removal of organized inflammatory exudates. In the paper referred to, fifteen cases of fibroid tumor were reported, and four of peritoneal adhesions. Further experience has led to a modification in the method of using this agent, and also to the conclusion that the current used ought not to be the same in cases of simple hyperplasia of the uterus, or subinvolution, or in cases of chronic pyosalpinx, as in the denser fibroid tumors. In the latter, it has usually been found that a current generated from small cells, and having, therefore, comparatively small ampèrage, but high voltage, is the most useful. On the other hand, the same currents, when passed through a mass of exudative material surrounding or near the uterus, has in several instances excited a new inflammatory process, and has not secured ready absorption as in cases in which the current had greater electrolytic power, and in which the milliampèremeter marked only 80 to 100.

That a proper current of galvanism will stop the growth, and diminish the size of uterine fibroids, is no longer questioned, but how much may be accomplished by this agent in the removal of products of inflammation has not yet been fully determined. The author used galvanism in 64 cases during the year 1888, 31 being hospital, and 33 private cases. Of these, 19 were fibroid tumors of the uterus, 11 being sub-serous, 4 submucous, and 4 intramural. There were 5 cases of chronic pelvic peritonitis with extensive adhesions, 7 of localized pelvic peritonitis, in which the adhesions were limited to one locality, 4 of hydrosalpinx, 4 of chronic pelvic cellulitis, the exudate having matted the organs involved into one mass, 9 of retroversion of the uterus, with fixation, 10 of chronic metritis, 1 of chronic ovaritis, 3 of acute anteflexion with metritis. Of the 4 cases of hydrosalpinx, 1 discharged into the bladder, 1 into the rectum, and 1 into the vagina. In no case did a subperitoneal or an intramural fibroid disappear entirely, no matter how long the galvanism was used, but the growth was checked, and the troublesome symptoms disappeared. Very large masses, with accumulations of fluid about them, improved most rapidly, and the fluid disappeared in all cases. The current in such cases was of a strength of 200 milliampères, and was sent directly through the tumor, from side to side of the abdominal wall. In other cases, the negative electrode was placed in the vagina, against the projecting mass, the positive electrode being upon the abdomen, and consisting of a large dispersion plate of copper, covered with French punk and chamois.

Intramural growths are best treated by the abdomino-vaginal method. In two or three cases submucous fibroids disappeared, all bleeding being stopped, though that was not accomplished suddenly. It was not found that the positive electrode exerted a more beneficial effect than the negative, and the former was rarely used in the uterus or vagina. A current of 50 to 100 milliampères was all that was necessary to remove inflammatory exudates in every case, so that the conclusion was reached that persistency and skill were all that were necessary in such cases to ultimate success, if the general health were fairly good.

The fluid of a hydrosalpinx and the enlargement of an ovaritis will alike disappear by this means of treatment. In a few cases of acute anteflexion with chronic metritis, the platinum electrode has been passed just beyond the curve in the uterus, and has caused slight sloughing; with the use of a current of large ampèrage the result has always been satisfactory. If the patient is debilitated, and the exudate around the broad ligaments recent, inflammatory symptoms may occur if an attempt is made to cause absorption by galvanism. The author stated that he had never seen any harm follow the passage of the strongest current through the abdominal viscera. Healthy tissues, in which there is a normal quantity of fluid, furnish a good conducting medium for electricity, while the new connective tissue, which contains almost no bloodvessels, is a very poor conductor, and is thus susceptible to the effects of the current.

The author had not used the puncturing needle of Apostoli in any case, and he had had no serious accident, though he had frequently observed that the general health of the patient was not so good when under active treatment as previously, and also that it was sometimes two or three months after the galvanism was stopped before the full benefits of the treatment were appreciated. The number of applications should vary between twelve and twenty, and the intervals between them should be four days.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Daniel Lewis, of New York.
Vice-President.—Alfred Mercer, of Syracuse.
Secretary.—F. C. Curtis, of Albany.
Treasurer.—Charles H. Porter, of Albany.
Censors.—L. Emmet Holt, of New York; S. Sherwell, of Brooklyn; E. M. Hermance, of Yonkers; Joseph Lewi, of Albany; Thompson Burton, of Fultonville; Leroy McLean, of Troy; Robert Fraser, of Camden; C. L. Stiles, of Oswego; J. H. Glass, of Utica; H. L. Elsner, of Syracuse; Frank H. Potter, of Buffalo; B. R. Fordyce, of Union Springs.

CORRESPONDENCE.

A RARE COMPLICATION OF LABOR, SIMULATING RUPTURE OF THE UTERUS.

To the Editor of THE MEDICAL NEWS,

SIR: The extreme rarity of the accompanying case, occurring in the wards of Dr. Carl Braun, of Vienna, and sent to me by my son, Dr. J. Whitridge Williams, prompts me to forward it to you, with the request that you be kind enough to publish it in your valuable journal.

Yours truly,
P. C. WILLIAMS, M.D.

BALTIMORE, February 11, 1889.

The following case, which I was fortunate enough to see, in the wards of Dr. Carl Braun, of Vienna, is certainly worthy of mention, because of its extreme rarity;

A. B., pregnant with her eleventh child, entered the hospital after having been in labor for forty-eight hours. When I saw her, four hours later, she was in a state of collapse and had no labor pains.

On external examination we found that the abdomen, in the umbilical region, was of a yellow hue; and the lower portion of the abdominal cavity and the pelvis were filled with liquid in which the uterus could be freely ballotted *en masse*. The fœtus was dead, and presented by the vertex.

Naturally, from the condition of the patient, Dr. Braun diagnosed either a rupture of the uterus or a rupture of the vessels of the broad ligament.

Owing to the complete inertia uteri and a very small pelvis, craniotomy was performed, and the child extracted by the cranioclast. The placenta was extracted manually, and the interior of the uterus was examined with the utmost care, but no trace of rupture could be found In view of this fact, the diagnosis of ruptured broad ligament was made, and such diagnosis appeared to be correct at the time.

No exploratory incision was made, and death followed in fourteen hours. The autopsy revealed the pelvis filled with a *large quantity of bile*, which had flowed from a rupture at the junction of the common bile-duct with the hepatic duct, and had produced a general peritonitis, which caused death.

The uterine walls showed no sign of rupture, save at one point, where the uterine peritoneum presented, a short linear rent, which, however, did not extend into the muscular layer. No preëxisting inflammation or other cause for the rupture of the bile-ducts could be found.

I report this case on account of its great rarity. So far as I can learn, it is unique; and Dr. Braun states that in all his experience he has never seen or heard of a similar case.

Probably none of us will ever be required to diagnose between an acute hæmatocele and a case similar to this. Should we meet with an apparent case of uterine rupture, and find none, it would be well to remember that the bile-duct has been ruptured during labor with the production of similar symptoms, and that, in the case here reported, the lower part of the abdomen was stained of a yellow color, while the remainder of the surface was of normal appearance.

J. WHITRIDGE WILLIAMS.

VIENNA.

NEWS ITEMS.

Philadelphia Neurological Society.—At the annual meeting of this Society held January 28, 1889, the following officers were elected:

President.—Dr. S. Weir Mitchell.
Vice-Presidents.—Drs. Horatio C. Wood and Wharton Sinkler.
Secretary.—Dr. J. Madison Taylor.

Treasurer.—Dr. Guy Hinsdale.
Recorder.—Dr. William H. Morrison.
Council.—Drs. Charles K. Mills, Francis X. Dercum, and James Hendrie Lloyd.

An Unexpended Balance.—Press dispatches from Washington state that the unexpended balance of the appropriation by Congress to pay for medical and other service during the illness of the late President Garfield is about $10,000, and that Dr. D. W. Bliss, the chief physician in attendance on the President, and who received only $6,500, is a claimant for this unexpended balance.—*Boston Med. and Surg. Journal*, Jan. 31, 1889.

Honors to Pasteur.—The King of Greece has conferred on M. Pasteur the Grand Cross of the Saviour, the highest Greek order. Dr. Grancher, the director of the Pasteur Institute, and Dr. Roux and Dr. J. Guyon, assistants, are made Commanders of the same Order.—*Brit. Med. Journ.*, Jan. 26, 1889.

Accuracy of Diagnosis.—Lawson Tait says, in his recently published lectures on ectopic pregnancy and pelvic hæmatocele: "I once saw a surgeon, who is now a baronet and has a court appointment, remove a breast with a tumor in it. After he had the whole thing in his hands, he drew his knife across the tumor, and out spirted a lot of laudable pus. He had made his explorative incision after the treatment was complete. Absolute accuracy of diagnosis in the abdomen is very far from being possible; only the ignorant assert that it is, and only fools wait for it."—*Boston Med. and Surg. Journal*, Jan. 31, 1889.

The Potato-cure for Swallowed Foreign Bodies.—DR. SALZER, at a meeting of the Medical Society of Vienna, held January 11, 1889, stated that he had treated a six year old boy, who had swallowed a small weight, a woman, who had swallowed a set of teeth, and a nine year old girl, who had swallowed a nail, by the method advocated by Dr. Cameron of Glasgow, which consisted in feeding the patients for several days on nothing but potatoes. This treatment, which in all three cases was followed by success, is a method in vogue among the pickpockets of London, who swallowing their booty live on potatoes until the stolen articles appear *per vias naturales.—Berliner klin. Wochenschrift*, Jan. 28, 1889.

Massage and Masseur.—DR. METZGER, the famous masseur of Holland, puts himself out for no one. The Empress of Austria, and the princes and princesses who seek his treatment, must all go to him. The Pope is the only one with whom he makes an exception, the doctor going to Rome to treat him. He receives no one at his private residence; his clients, who come from all parts of the world, assemble twice daily in the drawing-rooms of the Amstel Hotel, and passing in their turn a few minutes with the doctor, they each and all submit to the special treatment adapted to their respective ailment, which treatment is generally successful. This celebrated specialist was formerly a butcher's boy; his careful observations of the muscular action of different animals, was the foundation of his success as a specialist.—*Progrès Médical*, January 12, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 5 TO FEBRUARY 11, 1889.

By direction of the Secretary of War, JEDEDIAH H. BAXTER, *Colonel and Chief Medical Purveyor*, will proceed to New York City on public business connected with the Medical Department, and, on completion thereof, return to his station in this city.—Par. 17, *S. O. 30, A. G. O., Washington*, February 5, 1889.

By direction of the President, JOSEPH C. BAILY, *Lieutenant-Colonel and Assistant Medical Purveyor*, and CHARLES L. HEIZMANN, *Major and Surgeon*, are detailed as members of the Army Retiring Board, at San Antonio, Texas, convened by War Department Order dated January 16, 1888, published in S. O. No. 12, January 16, 1888, from Headquarters of the Army, vice Lieutenant-Colonel Edward P. Vallum, and Major Francis L. Town, hereby relieved.—Par. 15, *S. O. 28, A G. O, Washington*, February 5, 1889.

The Medical Director will proceed to Fort Buford, Dakota, on public business connected with the Medical Department, and, upon completion of duty, will rejoin his station.—Par. 8, *S. O. 14, Headquarters Department of Dakota, St. Paul, Minnesota*, February 5, 1889.

By direction of the President, in pursuance of the authority contained in the provisions of the Act of Congress approved March 3, 1887, "Making appropriations for sundry civil expenses of the Government," etc., relating to the methods of preventing the spread of epidemic diseases, GEORGE M. STERNBERG, *Major and Surgeon* (U. S. Army), will proceed to the Island of Cuba, for the purpose named in the letter of the President addressed to the Secretary of War, April 17, 1888, and, upon completion of this duty, will return to his proper station, and submit his report to the President.—Par. 16, *S. O. 30, A. G. O., Washington*, February 5, 1889.

By direction of the Secretary of War, GEORGE M. STERNBERG, *Major and Surgeon*, is relieved from duty as Attending Surgeon and Examiner of Recruits at Baltimore, Maryland, to enable him to comply with the requirements of Par. 16, S. O. No 30, of the 5th inst.—Par 4, *S. O. 31, A. G. O., Washington*, February 6, 1889.

KILBOURNE, HENRY S., *Captain and Assistant Surgeon.*—Having complied with Par. 2, S. O. No. 6, Department of the Columbia, will return to his station, Vancouver Barracks, Washington Territory.—Par. 1, *S. O. 9, Headquarters Division of the Pacific, San Francisco, California*, February 2, 1889.

By direction of the Secretary of War, the leave of absence granted LOUIS A. LA GARDE, *Captain and Assistant Surgeon*, in S. O. No. 290, December 13, 1888, from this office, is extended three months.—Par. 2, *S. O. 31, A. G. O., Washington*, February 6, 1889.

By direction of the Secretary of War, ROBERT W. SHUFELDT, *Captain and Assistant Surgeon*, having appeared before the Army Retiring Board, at Fort Leavenworth, Kansas, in compliance with Par. 1, S. O. No. 4, January 5, 1889, from this office, will repair to this city, to await action on the proceedings in his case.—Par. 12, *S. O. 32, A.G. O., Washington, D. C.*, February 7, 1889.

MEARNS, EDGAR A., *Captain and Assistant Surgeon* (Fort Snelling, Minnesota).—Will proceed, without delay, to Fort Pembina, Dakota, and report to the commanding officer of that post, for temporary duty.—Par. 3, *S. O. 12, Headquarters Department of Dakota, St. Paul, Minnesota*, January 31, 1889.

MEARNS, EDGAR A., *Captain and Assistant Surgeon.*—Is relieved from temporary duty at Fort Pembina, Dakota, and will rejoin his station, Fort Snelling, Minnesota, without delay.—Par. 4, *S. O. 14, Headquarters Department of Dakota, St. Paul, Minnesota*, February 5, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING FEBRUARY 9, 1889.

HALL, J. H., *Passed Assistant Surgeon.*—Ordered to Naval Hospital, Washington, D. C.

ECKSTEIN, H. C., *Surgeon.*—Detached from U. S. Steamer "Adams," and wait orders.

DIXON, W. S., *Surgeon.*—Detached from special duty at Baltimore, Maryland, and ordered to the U. S. Steamer "Boston."

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIV. SATURDAY, FEBRUARY 23, 1889. No. 8.

ORIGINAL LECTURES.

ACUTE PANCREATITIS.

A Consideration of Pancreatic Hemorrhage, Hemorrhagic, Suppurative, and Gangrenous Pancreatitis, and of Disseminated Fat-necrosis.

The Middleton-Goldsmith Lecture for 1889, delivered before the New York Pathological Society, Feb. 16, 1889.

BY REGINALD H. FITZ, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY IN HARVARD UNIVERSITY AND PHYSICIAN TO THE MASSACHUSETTS GENERAL HOSPITAL.

UNTIL the time of Clässen[1] the evidence of an acute inflammation of the pancreas was almost wholly theoretical, and was not controlled by any considerable number of anatomical observations. Mercury was known to produce salivation, and the watery diarrhœa following its use was supposed to be due to irritation of the pancreas.

Influenced by this and other considerations, Schmackpfeffer[2] having found certain alterations of the pancreas in a syphilitic woman who had been liberally treated with mercury, attributed her symptoms to the pancreatic changes. The latter he regarded as anatomical evidence of an acute inflammation. He describes[3] these changes as follows: "The pancreas was unusually dense, dry, and very much swollen; it was inflamed and red throughout, although more in the right than in the left side. Numerous drops of blood escaped from the cut surface. The duct was very much dilated, especially at its mouth. The gland weighed 5¾ ounces.

Some years later Neumann[4] stated that "death might take place within a few hours from a fatal metastasis of the buccal salivation to the pancreas. This happens when in the midst of profuse salivation the pulse sinks and quickens, or the swelling of the salivary glands subsides, and salivation is replaced by a green diarrhœa, while the skin is dry and shrunken." Under such circumstances the pancreas is found decidedly swollen, although but slightly reddened.

Clässen[5] knows of no observations in confirmation of Neumann's statement, and doubts its truth. He collects, however, a half-dozen cases, among them Schmackpfeffer's, of what he regards as fatal pancreatic inflammation, and from them he establishes the symptomatology of acute pancreatitis. The views thus obtained have essentially prevailed up to the time of Friedreich's article in Ziemssen's *Cyclopædia* in 1875.

The lesions found were as follows: In the second case, that of Juppin,[1] "a section was made through the pancreas. Its tissue was dense and friable. It was a third larger round than normal; it encircled two-thirds of the duodenum, which it compressed, and it affected the pylorus also. . . . The pyloric opening was almost entirely closed and the tip of the little finger could be introduced only with great difficulty and after repeated efforts. A vertical section through the pylorus showed it to be of almost cartilaginous density."

The third case is credited to Casper.[2] "All the organs of the remarkably handsome, though excessively fat, body were wholly normal with the exception of the pancreas. This was swollen to the size of a large fist, of cartilaginous density, firmly united to the duodenum, and in part to the stomach, and was of a brownish-red color. Its structure was not recognizable."

The fourth observation is also from Casper.[3] "The pancreas was so much enlarged that its head was a half hand's-breadth wide, much infiltrated with blood, very dense, its structure not recognizable. In consequence of the enlargement of the gland its shape was more globular then round.

Rahn is the authority for the fifth case.[4] The stomach was dilated "almost to bursting," and was filled with clotted blood. "In the middle of the abdomen there projected from the abdominal aorta a dense, scirrhous tumor as large as the fist. It was intimately united to the aorta, and so compressed it that when the aorta was opened the finger would not pass through the narrowed canal. The narrowed portion was immediately below the origin of the cœliac artery. On close examination of the tumor with reference to its origin, the head of the pancreas was found degenerated in this scirrhous mass, while the left part of the gland was in a wholly healthy state."

The sixth case is from Morgagni.[5] "The pancreas was unusually large, and contained round, tolerably large tumors of a density somewhat approaching that of cartilage."

To these is added another possible case, from Lieutaud,[6] in which, after an acute attack of gastric pain, fever, vomiting, anxiety, and frequent fainting, "the pancreas was found much enlarged, hard, and scirrhous throughout. The left kidney was in a state of liquefaction."

The first case may have been one of mercurial poisoning, the second was one of probable malignant disease; the third and fourth possibly of inflamed pancreas,

[1] Die Krankh. d. Bauchspeicheldr., 1842.

[2] Diss. Inaug. de quibusd. Pancreatis Morbis, 1817, 26.

[3] Op. cit., 25.

[4] Von den Krankh. des Menschen. Berlin, 1836. Clässen, op. cit., 292.

[5] Op. cit., 193.

[1] Journ. de méd. chir. pharmac., 1791, lxcix. 73. Clässen, p. 200.

[2] Wochenschr. f. d. ges. Heilkde., 1836, 437. Clässen, op. cit., 207.

[3] Wochenschr. f. d. ges. Heilkde., 1836, 439. Clässen, op. cit., 213.

[4] Schirrhosi pancreatis diagnosis, 1796, obs. 1. Clässen, op. cit., 218.

[5] De sedibus et caus morb., 1765, iii. Epist. xxx., art. 10 Clässen, op. cit., 212.

[6] Hist. Anat. Med., 1767. i. obs. 1021

but the evidence is insufficient to establish clearly the diagnosis. The fifth case may have been one of aneurism while the last two are more suggestive of malignant disease than of acute pancreatic inflammation.

The common symptoms were deep-seated pain near the stomach, producing a peculiar anxiety, restlessness, perhaps frequent fainting. The pain bore no definite relation to the vomiting or other symptoms, and was not increased in proportion to external pressure. The vomiting was forcible, more or less greenish material being expelled. The abdomen was moderately tense, there was slight fever, and the appetite was but little disturbed and might be increased. There was a moist tongue, thirst, and constipation.

The effect of Clässen's treatment of the subject may be seen nearly thirty years later in the statement by Wardwell,[1] that the prominent symptoms of acute pancreatitis are deep-seated, dull, epigastric pain, distention, sickness, and vomiting of a clear, greenish, viscid fluid; thirst, faintness, moist tongue, constipation, and slight pyrexia.

The first step toward an essential modification of these views was made by Klebs, in 1870.[2] He preferred to say nothing about inflammation of the pancreas, but described the various lesions which have been found in and around this gland, without attempting to show their possible relations to each other. He availed himself of the cases published by Portal, Hooper, Löschner, Haller, and Klob, and of one in his own experience, to associate pancreatic hemorrhage with severe symptoms, and to recognize the possibility of a hemorrhagic inflammation of the pancreas, already admitted by Rokitansky[3] as a very rare occurrence. Klebs further recognized that this hemorrhagic inflammation might possibly result in a purulent peripancreatitis with partial sequestration of the gland.

Friedreich,[4] however, undertook to present a complete picture of acute pancreatitis more in accordance with the anatomical treatment of Klebs than with that of Clässen. He availed himself of the cases used by Klebs; in addition, of one reported by Oppolzer, and of another under his own observation. He suggested that acute pancreatitis was either primary or secondary. The former appeared to have a tendency to hemorrhage in the pancreas or in its vicinity, in which case a termination in gangrene and ichorous peripancreatitis might occur. If the acute pancreatitis became suppurative, multiple, minute abscesses were to be found, which tended to become confluent, and to produce a resulting peritonitis.

The secondary variety of acute pancreatitis was either the granular degeneration found in infective diseases, or the circumscribed "metastatic" abscess. The possibility of a metastatic pancreatitis in the course of a parotitis was not to be absolutely denied, especially in virtue of the case reported by Schmackpfeffer.[5]

As there is a doubt of the existence of a pancreatitis in this case, it may be safely stated that there is no reason for admitting the existence of a metastatic pancreatitis secondary to inflammation of the parotid gland. It is evident[6] that an acute parotitis may arise during the course of a pancreatic inflammation. This single instance of association is presumably analogous to the occurrence of parotid inflammation in septic conditions of various origin.

Since Friedreich's anatomical recognition of an acute pancreatitis was based upon the consideration of four cases, he admitted his symptomatology of this affection to be neither precise nor complete. Furthermore, he, seems[1] to include under the head of pancreatic hemorrhage those cases where this lesion is associated with necrosis and gangrene, and others where hemorrhage into the pancreas appears to be the sole cause of sudden death.

Klebs[2] had already recognized the existence of a suppurative peripancreatitis, and stated, presumably from his own observation, that in most instances this proceeded from lymph-glands. These were either the seat of metastatic abscesses, or were primarily diseased by traumatic agencies or injurious food. Such abscesses were regarded as occasional causes of thrombosis of the mesenteric and portal veins. He recognized a possible, eventual separation of the pancreas from surroundings by the extension of the suppurative process.

He thought it possible that the case of Haller and Klob,[3] already admitted as one of hemorrhagic pancreatitis, might belong in this series, and regarded that reported by Gendrin[4] as illustrative.

In the light of the observations published up to the time of his article, Klebs regarded as of doubtful existence any pancreatic abscess which did not arise from a peripancreatitis or from a suppurating cyst.

Important evidence as to the possible method of origin of a peripancreatitis was furnished by Chiari,[5] who found a round ulcer of the stomach communicating with the cavity of the omentum. The latter contained a spacious abscess with several openings into the jejunum. Lying free within this cavity was a shreddy mass of tissue, twelve centimetres long. It was brownish-black, friable, and presented the structure of the pancreas.

Four years later, Chiari published the report of a case[6] by Schlossberger, in which the sloughing pancreas was discharged through the bowels. He reported still another[7] of earlier occurrence, in 1862. The sloughing pancreas, discharged from the bowels, was brought to Rokitansky by Trafoyer.

The next communication of especial importance in connection with the subject of pancreatic inflammation is that of Balser.[8] He calls attention[9] to the presence of nodules and patches of necrotic fat tissue in the mesentery and in the contents of a cavity behind the mesentery. In the latter lay the pancreas also, attached only to the duodenum, and its lobules appearing as if macerated. A second case was reported by him,[10] in which there were patches of necrosis of the abdominal fat associated with similar appearances in the pancreas. In addition there was evidence of old and recent hemorrhage in the gland.

My own interest in this subject was first particularly aroused in 1876. At the request of Dr. J. P. Maynard, of Dedham, Mass., I made the post-mortem examination of a lady of uncertain age, not especially fat, who fell on the floor while apparently in her usual good health. She

[1] Reynolds's Syst. of Med., 1871, iii. 414
[2] Handb. d. path. Anatomie, 1876, i. 2, 553.
[3] Lehrb. d. path. Anat., 3te Aufl., 1861, iii. 309, 242.
[4] Ziemssen's Handb. d. Path. und Therap., 1875, viii. 2.
[5] Page 1. [6] Case LVIII.

[1] Op. cit., 273. [2] Op cit. 556. [3] Case LVI.
[4] Page 177. [5] Case LVIII. [6] Case LIX.
[7] Case LVII. [8] Virchow's Arch., 1882, xc. 520.
[9] Case LXIV. [10] Case XXIV.

died within thirty minutes. In the meantime, she complained of pain in the lower part of the chest. Her respiration became hurried, the pulse feeble; a short convulsion occurred, and death took place. The abnormal appearances found were several nodules and patches, the largest of the volume of a walnut, of freshly extravasated blood at the periphery of the posterior portion of both lower pulmonary lobes. There were several patches, of considerable size, of submucous hemorrhage near the ileo-cæcal valve along the mesentery. The pancreas was thin and very flaccid, with occasional slight, subperitoneal hemorrhages. Section through the organ showed similar hemorrhages in its substance. The gland-lobules were of a reddish-gray color, the general surface spotted with white specks. Microscopic examination showed extensive fatty degenerations of the gland-cells, many fat-drops being exceedingly minute. The interstitial fat was frequently crystallized, and, at times, bundles of orange, acicular crystals (hæmatodin?) were found.

The cœliac plexus was examined and nothing abnormal found. The heart was contracted, its cavities contained mainly fluid blood. The mesenteric veins near the cæcum were injected. The liver and kidneys were injected; the spleen and suprarenal capsules were normal. Nothing abnormal was found in the brain or heart. It was considered, at the time, that the history of the case and the appearances found were best explained on the ground of Zenker's communication,[1] which will be soon referred to more particularly.

Since then it has been my opportunity, largely owing to the zeal of Drs. Gannett and Whitney, to see at least a dozen examples of pancreatic hemorrhages, with or without necrosis of fat tissue, and of necrosis of fat-tissue without pancreatic hemorrhage. I have been present at several of the post-mortem examinations at which the diseased pancreas has been found, and have demonstrated to the students of the Harvard Medical School many of the specimens which have been removed by my friends and colleagues.

Having thus been impressed with the importance of the subject, I take this opportunity of utilizing the material which has been gradually accumulated by Dr. W. F. Whitney, the curator of the Warren Anatomical Museum. The value of this material is greatly enhanced by the records of the clinical course of the disease in question, which have been furnished by those in charge of the patients. In addition, a collection of similar cases has been gathered from medical literature, which of late years has been especially prolific in this subject.

This paper will include a consideration of—

The liability of the pancreas to hemorrhage;

The association of hemorrhage with acute pancreatitis;

The occurrence of acute pancreatitis without hemorrhage; and—

The relation of acute pancreatitis to fat necrosis.

Pancreatic Hemorrhage.

Although Kolb[2] regarded interstitial pancreatic hemorrhage as not rare, he found it only, and then not constantly, in extreme portal stagnation.

Spiess, however, in 1866,[1] reported to the Frankfort Medical Society a case[2] of sudden death due to an extensive, interlobular, pancreatic hemorrhage. His observation, though unique, escaped attention.

Klebs,[3] as already stated, had associated pancreatic hemorrhage with severe symptoms, and suggested that the hemorrhage might be due, in the absence of inflammatory changes in the interstitial tissue, to the corrosive action of the pancreatic secretion.

Zenker[4] then reported three cases as of fatal pancreatic hemorrhage. This lesion, however. existed in only two of them,[5] while in the third the hemorrhage was near the pancreas, in the hilus of the spleen. In this last case, and in one of the others, there was a striking venous injection of the solar plexus. He regarded this as the immediate cause of the sudden death, in accordance with the results of Goltz's experiment of cardiac paralysis by a blow on the frog's abdomen. He found, in one of his cases a flabby heart with distended, empty cavities associated with marked injection of the abdominal organs. as in the frog experimented upon.

Prince[6] then published a paper on this subject, and Draper reported[7] a series of cases of sudden death from pancreatic hemorrhage.

Virchow, however, in most recent times, has stated[8] that nothing is more rare than hemorrhage in the pancreas.

The relative frequency and absolute importance of pancreatic hemorrhage are thus, unquestionably, a discovery of very recent origin. There are, however, a considerable number of recorded cases which show that sudden and unexpected death may occur, and a conspicuous hemorrhage be found in or near the pancreas as the sole, significant lesion. Such hemorrhage may occur in a previously diseased pancreas or individual, or it may take place when the person is apparently in his usual health, and the pancreas gives no evidence of any acute disease.

Both groups illustrate the liability of the pancreas to hemorrhage, but the conditions of its occurrence must vary in each.

In the first series the hemorrhage is associated with certain lesions of the pancreas of a chronic character. The earliest case of this sort, and one which has been quoted in evidence of pancreatic hemorrhage as a cause of sudden death, is that by Störck.[9]

A woman, æt. twenty-eight, during the catamenial period, was seized with severe vomiting. The flow was arrested; chills, dyspnœa, and palpitation followed. Although she gradually improved, an epigastric pulsation became apparent synchronous with the heart-beat. After the next menstrual period this pulsation became more severe, and a resistant pulsating tumor could be felt below the stomach. The tumor increased in size, and there was a sense of weight in the epigastrium. During the subsequent three and a half months the symptoms improved, the palpitation became less, and the tumor smaller and softer. Sudden weakness then occurred, there was a rust-colored vomit, bilious stools,

[1] Deutsche Zeitschr. f. prakt. Med., 1874, ii. 351.
[2] Oesterr. Zeitschr. f. prakt. Heilk., 1860, v. 529.

[1] Schmidt's Jarhb., 1867, cxxxiv. 270. [2] Case I.
[3] Page 16. [4] Loc. cit. [5] Cases III. and IV.
[6] Boston Medical and Surgical Journal, 1882, cvi. 28.
[7] Trans. Assoc. of Amer. Phys, 1886, i. 243.
[8] Berl. klin. Woch., 1887, ix. 155.
[9] Annus Med. Second, 1762, 245.

sudden increase in the size of the tumor, rapid emaciation, and death,

The pancreas was found so large and heavy as to weigh thirteen pounds. It formed a sac filled with blood, partly grumous and partly laminated. The stomach, intestines, and omentum were displaced and compressed.

The evidence here presented is not sufficient to exclude the possibility of the chief lesion in this case being an aneurism of some artery in the vicinity of the pancreas. If Störck's view be accepted, that there was a hemorrhage within the pancreas, we have merely an illustration of what has been repeatedly found since his time, namely, hemorrhage into a pancreatic cyst.

The first indubitable case of this sort on record is to be found in the museum of the Harvard Medical School. It was published by Gross[1] from the MS. furnished by Dr. J. B. S. Jackson, and has also been published by the latter.[2]

For several months before the patient's death a tumor was noticed in the epigastric and right hypochondriac regions. There were also signs of advanced phthisis. The patient sat up every day until a short time before his death. The day before this took place he was found partially comatose. The tumor was a cyst of the pancreas, containing from ten to fourteen ounces of bloody-looking serous fluid without coagula.

The conspicuously hemorrhagic contents of pancreatic cysts have been also noticed by Anger,[3] Küster,[4] Bull,[5] Kocher,[6] Wölfler,[7] Hagenbach,[8] and Steele.[9] The case reported by Pepper[10] as one of fatal hemorraage from a pancreatic cyst admits of another explanation. The patient, an intemperate man, had frequently recurring intestinal hemorrhages for six months. He had two attacks of bloody vomit within five weeks, and, finally, an attack of gastro-intestinal hemorrhage, proving fatal in an hour. The blood came through an opening in the duodenum, a half-inch in diameter, near the common duct. A probe passed through the opening, entered a cavity in the head of the pancreas of the size of a walnut. Its walls were trabeculated, but "everywhere covered by a smooth mucous membrane;" numerous crystals of hæmatine were lying on the surface. "But little of the proper gland-tissue could be seen in this part of the organ, its place having been apparently usurped by dense, fibrous tissue. The same state of affairs is also observable in the body and tail of the gland, although in a less marked degree." It seems more probable, from the symptoms in this case, the seat of the cavity, the nature of the duodenal opening, and the history of pancreatic cysts, that this was rather a case of perforating duodenal ulcer with corrosion of the pancreas, than of pancreatic cyst opening into the duodenum.

[1] Elements of Path. Anatomy, 1839, ii. 209.
[2] Catalogue of Museum of the Boston Medical Improvement Society, 1847, 174.
[3] Bull. Soc. Anat. de Paris, 1865, xl. 192.
[4] Berliner. klin. Woch., 1887, ix. 154.
[5] N. Y. Med. Journal, 1887, xlvi. 376.
[6] Corresp. bl. f. Schweizer Aerzte, 1888, 279; British Med. Journal, 1888, i. 1297.
[7] Zeitschr. f. Heilkde., 1888, ix. 119.
[8] Deutsche Zeitschr. f. Chirurgie, 1883, xxvii. 110.
[9] Chicago Medical Journal and Examiner, 1888, lvi. 205.
[10] Proceedings of the Philada. Path. Society, 1870, iii. 182.

Doubts are also to be entertained concerning Rugg's case,[1] reported as one of fatal hemorrhage from the pancreas. In 1843 he had a male patient, æt. thirty-two years, who was rapidly recovering from a severe attack of acute rheumatism, but was up and dressed on the day before his death. He had frequently complained of severe pains in the epigastrium, but these had left him a few days before his death, and were replaced by acute pains in the left lumbar region. He was suddenly seized with agonizing pain in the latter place. His countenance became anxious, his lips pale, pulse imperceptible, skin cold and sweating, and death took place in an hour. The pancreas was somewhat larger and harder than usual, and had a cavernous rupture in its anterior surface, having all the appearance of an excavated ulcer. Its cavity contained a bloody substance, about the size of a walnut, in concentric layers. On longitudinal section of the organ several of these sanguineous deposits were found, varying in size from that of a horse-bean to a hazel-nut, in appearance like aneurismal deposits. A large quantity of blood was extravasated over the left kidney. The probability of this case being rather one of aneurismal than of pancreatic hemorrhage is very strong.

Finally, the somewhat irregular case of pancreatic hemorrhage reported by Satterthwaite,[2] may be mentioned. The patient, a man of thirty-six years, intemperate, syphilitic, had three attacks of jaundice in eight years. The last began five months before, and continued until his death. Toward the end of life he had a persistent bleeding from the lip, frequent intestinal hemorrhages, and constant drowsiness. The pancreas was distended beyond the usual size by a clot of blood. There was an extravasation of blood between the coats of the upper part of the ileum. The symptoms in this case are so different from those occurring in immediately fatal pancreatic hemorrhage, or in hemorrhagic pancreatitis, that the hemorrhage may best be attributed to the jaundice, like that from the lip and from the intestine. The pancreatic localization of hemorrhage in jaundice is exceptional, but need not be unexpected.

There remains, then, the following series of sixteen cases where pancreatic hemorrhage was apparently the sole cause of sudden and unexpected death, in persons not presenting evidence of other causes of death. Nine of them have occurred in or near Boston, and three of these are now, for the first time, published.

The following more detailed report of Case XV. is compiled from notes sent by Dr. Holt, of Cambridge, who made the post-mortem examination.

The patient, fifty-eight years of age, was a gentleman of leisure, thin, white-haired, his body looking like that of a considerably older person. He was at a club-dinner the evening before his death.

He awoke about two o'clock the following morning, complaining of severe pain in the bowels, nausea, and great prostration. He was pale, and his pulse was very weak. He soon vomited, became collapsed, and died within half an hour.

The duodenal half of the pancreas was of a bluish-red color, and was sharply contrasted with the yellowish-gray splenic end. The darker portion was infiltrated with

[1] Lancet, 1850, i. 608.
[2] New York Medical Record, 1875, x. 541.

SIXTEEN CASES OF PANCREATIC HEMORRHAGE.

No.	Authority.	Sex.	Age.	Antecedents.	Symptoms.	Lesions.
I.	Spiess, I., Schmidt's Jahrb. 1867, cxxxiv. 270.	M.	Adult.	.....	Sudden death.	Extensive, interlobular, pancreatic hemorrhage, and considerable hemorrhage behind the pancreas and spleen, between the peritoneum and abdominal wall.
II.	Klebs, Handb. d. Path. Anat., 1870, I. 2. 555.	...	...	.....	Unexpected death.	Extravasation of fresh blood in the pancreas, no interstitial inflammatory changes, no thrombosis of large vessels near pancreas.
III.	Zenker, Deutsche Zeitschr. f. prakt. Med., 1874, ii. 351.	M.	48	Very fat. Heart disease in early life. Previously pulmonary disease. Three years ago slight digestive disturbance.	Awoke suddenly at night; unwell; desire to defecate, got out of bed, slight tendency to vomit. Returned to bed. Immediate death.	Entire pancreas of an intense, bloody color, and so fatty infiltrated that only fatty detritus was visible. Slight cardiac aneurism not in such a condition as to be accused of causing sudden death.
IV.	Zenker, loc. cit.	M.	...	Drunkard.	Found dead in the water. Well on the same day.	Hemorrhagic infiltration and fatty degeneration of the pancreas.
V.	Maynard and Fitz MSS. notes 1875, v. p. 26.	F.	Adult.	In usual health.	Sudden pain in lower chest. Hurried respiration, feeble pulse. Death in a half-hour.	Thin, flaccid pancreas, with slight subperitoneal and intraglandular hemorrhages. Cut surface dotted with white specks. Extensive fatty degeneration of gland cells. Fat-crystals and blood-crystals. Nothing abnormal in cœliac plexus.
VI.	Kollman, Aerztl. Intell. Bl., 1880, xxvii. 427.	F.	Adult.	Mitral stenosis. Pleurisy in left chest. Frequent abdominal pain. Able to work.	After a hearty meal frequent, solid dejections. Restless and anxious at night. Cold. Sense of constriction in chest Ate breakfast with appetite. Died suddenly while walking with companions.	Injected pancreas surrounded as far as the spleen with extravasated blood. Hemorrhage in mucous membrane of the duodenum. 400 grammes of yellow fluid in left chest; 100 grammes in the pericardium. No appearance of fatty degeneration of the pancreas.
VII.	Gerhardt, V. Kollman, loc. cit.	F.	47	Bronch'l catarrh, emphysema, anasarca, ascites, albuminuria, cyanosis.	Died in collapse.	Inconsiderable, interlobular pancreatic hemorrhage. Tissue behind pancreas as far as the spleen infiltrated with blood. Duodenal mucous membrane almost black, and peritoneum over its convexity infiltrated with blood. Ecchymosis in mucous membrane of cæcum
VIII.	Reynolds and Gannett, Boston Med. and Surg. Journ,, 1885, cxii. 275.	M.	66	Abundant fat tissue.	Suffered from epigastric pain and constipation. Felt better next day, but in the evening found pulseless and collapsed. Death within 36 hours from the attacks of pain.	Pancreas enlarged one-half Consistency diminished. Cut surface reddish-black from much extravasated blood nearly uniformly distributed. Bloodvessels and pancreatic duct unaltered.
IX.	Draper, Trans. Asso. Am. Phys., 1886, i. 143.	M.	45	Strong, rugged. Drunk at long intervals.	Found dead in chair, as if asleep. Seen well within 48 hours.	Pancreas infiltrated with and surrounded by extravasated blood.
X.	Draper, loc. cit.	F.	44	Addicted to liquor, though rarely drunk.	Found dead in bed, to which she went dressed, complaining of headache. Seen well within 30 hours.	Pancreas infiltrated with blood. Moderate retroperitoneal hemorrhage. Eight ounces of thin, red fluid in the peritoneal cavity.
XI.	Draper, loc. cit.	F.	26	Very fat, intemperate. Kicked in abdomen a week before death, but afterward appeared in usual health.	Went to bed complaining of great abdominal pain. Some hæmoptysis. 14 hours later cold, pale, pulseless. Mind clear. Complained of intense abdominal pain and of thirst.	Pancreas enlarged, sodden, soft, and slimy, filled with effused blood. Infiltrated blood behind mesenteric peritoneum behind and below stomach, between stomach and colon, over right kidney. Twenty-two ounces of thin, red fluid in abdomen. No peritonitis.
XII.	Draper, loc. cit.	M.	55	Exemplary habits	Well in the morning. Cramps in the forenoon. Found dead eight and a half hours after.	The abnormally large pancreas uniformly infiltrated with fresh blood. Subperitoneal tissue of each side of the pancreas, for about two inches, filled with blood.
XIII.	Draper, loc. cit.	M.	31	Intemperate.	While in good health, sudden, epigastric pain, nausea, collapse and death in 45 minutes.	Pancreas and adjacent tissue infiltrated with blood; with microscope, granular gland-cells and blood in interlobular tissue.
XIV.	La Fleur, Méd. News, 1888, liii. 80.	M.	50	Obscure dyspepsia for several years.	Severe epigastric pain, vomiting, collapse. Death in 24 hours.	Pancreas doubled in size, dark red, firm. The cut surface mottled with capillary hemorrhage, separated by a grayish red, translucent material. Fatty degenerated tubules and acini. Cellular tissue around pancreas blood-stained.
XV.	Driver and Holt, MSS. notes, 1888, v. p. 52.	M.	58	At a dinner party the night before his death. Thin.	Awoke at 2 A.M. with severe abdominal pain, nausea, weak pulse and prostration. Speedy vomiting, collapse. Death within half an hour.	Duodenal half of the pancreas infiltrated with blood. Each side of the heart contained a little fluid blood.
XVI.	Williams, MSS. notes, 1888, v. p. 55.	M.	70	Thin, temperate, always well.	Sudden epigastric pain, vomiting, weak pulse, slight epigastric swelling, collapse in a few hours, and death in 16 hours.	Tail of pancreas infiltrated with blood. Slight mesenteric hemorrhage. No evidence of peritonitis.

blood, which lay in the interlobular tissue, and could be readily squeezed from the cut surface.

Nothing abnormal was found in the brain. Both sides of the heart contained a little fluid blood; the valves, cavities, and muscular substances appeared normal. The stomach was empty, and in the intestines were the products of digestion. The liver was normal in size and appearance, and the cortex of the kidneys was paler than the pyramids.

I am indebted to Dr. Williams, of Charlestown, Mass., for the notes of Case XVI., which occurred in his practice. It is included in the series, with the full recognition that it is open to criticism since the post-mortem examination was necessarily partial and hurried.

The patient, a man seventy years old, was a night watchman. His health had been good, and he had wholly abstained from liquor since early manhood.

In the evening he was suddenly seized with colicky pain in the epigastrium. After a few hours the pain was almost constant, sharp, and cutting, extending toward the left and down nearly to the navel. The abdominal muscles, especially the recti, were very rigid. There was a slight, circumscribed, epigastric swelling at the left of the median line, extending from the costal margin to the navel. It was non-resistant, and not sensitive to pressure, which rather relieved than increased the abdominal pain.

There had been vomiting of a yellowish fluid. The pulse was 95, regular, small; the radial and temporal arteries were rigid; the skin dry and not cool. The vomiting persisted, and in six hours the patient was collapsed, but conscious. He then became restless, the pain was less agonizing, and death took place sixteen hours after the beginning of the attack.

Dr. Williams's diagnosis was pancreatic hemorrhage. After death he was allowed to make an incision over the tumor, and found the pancreas enlarged from the median line of the body to the splenic end of the gland. The enlarged portion was more easily cut than the rest, and infiltrated with blood. On section, two or three ounces escaped into the peritoneal cavity. Slight mesenteric hemorrhages had occurred. There was no evidence of peritonitis, nor was any blood found in the peritoneal cavity before the pancreas was incised.

The following case, reported by Zenker,[1] is not inserted in the table, since it is not, strictly speaking, one of pancreatic hemorrhage, though important in suggesting the possible manner of death in this affection.

A man, aged twenty-eight years, strong, very fat, and epileptic, was found dead, having been seen alive an hour before. There was a hemorrhagic infiltration in the hilus of the spleen, and a venous hyperæmia of the solar plexus. The abdominal organs were injected, and the pancreas was in a state of fatty degeneration.

The consideration of the above table shows that most of the individuals concerned were in their usual health at the time of the attack, or when last seen alive. They were invariably adults, and usually beyond the age of forty, when the age was given. Some were conspicuously fat and strong, while a few were weak and thin. Although several were of intemperate habits, others were not so reported, and two were exemplary in this respect.

[1] Loc. cit.

Two had complained of previous digestive disturbance, and one suffered from frequent abdominal pain. One had received a kick in the abdomen a week before death.

From the evidence here collected, there is evidently nothing in sex, habit, condition, or exposure, which will indicate the likelihood of pancreatic hemorrhage.

The cases and data are insufficient in number and detail to permit an exact clinical picture of this affection which shall be of especial value in differential diagnosis.

We learn that pain was an early symptom in nearly one-half of the cases; that it was usually severe, and might be intense, and was to be found in the abdomen or lower chest. Although mention is made of its presence in the epigastrium in one-fifth of the cases, this region is not conspicuously designated as the seat. On the contrary, there may be little or no pain, or merely a sense of constriction of the chest. Nausea or vomiting is but occasionally mentioned; constipation or a desire for frequent stools is still more rarely noted.

The most constant symptoms are those of collapse, and are more or less intense and more or less prolonged.

Death may take place within a half-hour after the onset of the symptoms and may be delayed for thirty-six hours. It is questionable in the latter instance whether the case should not, more properly, be included under the head of hemorrhagic pancreatitis than of pancreatic hemorrhage.

The appearances found after death are conspicuously of hemorrhage within and near the pancreas.

The gland may be of normal size, or enlarged, and its density may not be modified, or the pancreas may be flaccid, soft, and friable. The hemorrhagic infiltration is to be found in the subperitoneal tissue around the pancreas as well as in the interstitial tissue of the gland. The former may be continued into the omentum and mesentery, behind the colon and into the perinephritic fat-tissue. The entire pancreas may be infiltrated, or either half, or the central portion alone may be conspicuously involved. The hemorrhage is usually diffused, but it may be in numerous patches, both beneath the peritoneal investment and in the interlobular tissue. The color and moisture of the cut surface indicate that the extravasation is recent. It may take place into a normal pancreas or into one which is either fatty infiltrated, or fatty degenerated, or into one which shows a granular condition of the epithelium.

In a single instance evidence of an older hemorrhage was to be found in the presence of round, orange-colored bundles of acicular crystals. In the same pancreas were also to be seen colorless, acicular crystals, probably of fat, in clumps visible to the naked eye, corresponding to the appearances to be described under fat-necrosis. The microscopic examinations of one of Draper's cases showed occasional patches of hemorrhage within the lobules, although the infiltration was essentially in the interlobular tissue.

Hemorrhages might also be found in the wall of the duodenum and cæcum, and in the lungs in a single instance.

Although the splenic artery is reported to have been tortuous in one case, there is no evidence in any of a circumscribed aneurism. The splenic vein, when examined, was free from obstruction.

The conditions found by Zenker, viz., injections of the

portal venous system and of the capillaries of the solar plexus, with distended and empty cardiac ventricles, were not generally met with.

Fatty degeneration and fatty infiltration of the pancreas were not necessarily present in these cases, and frequently occur without a trace of hemorrhage.

The seat, extent, and rapidity of the bleeding suggest that it is rather arterial than venous, and no evidence of venous obstruction has been found. Such hemorrhages are most likely to be of aneurismal origin, but aneurisms have not been discovered. An embolic source has been sought for in vain. It is possible that the pancreatic secretion may have corrosive properties, as suggested by Klebs, in which case the condition should occur oftener. Suggestive evidence in favor of this view is the fact, well known to demonstrators of anatomy, and called to my attention by my colleague, Dr. Mixter, that arterial injections are likely to break through and escape in the region of the pancreas.

Hemorrhages in a diseased or dead pancreas might be thus explained, but in the great majority of the cases collected there is no sufficient evidence of such disease. It is also possible that the hemorrhage may be of nervous origin as in the pulmonary infarctions sometimes associated with cerebral lesions.

The only fact in favor of this view is the association of such pulmonary nodules with the pancreatic hemorrhages in one case. This observation, compared with the relative frequency of pulmonary hemorrhages of apparent, central, nervous origin, makes the single instance of but little value as evidence.

That fat-necrosis is not a cause for such hemorrhage is obvious from its presence being suggested in only a single instance.

It is evident that the first step toward a more accurate knowledge of the immediate cause of this affection must lie in a more careful search for the actual source or sources of the leak.

(To be continued.)

ORIGINAL ARTICLES.

THE PREVENTION OF SUMMER DIARRHŒA AMONG INFANTS, VIEWED IN THE LIGHT OF THE LESIONS.[1]

BY L. EMMETT HOLT, M.D.,
OF NEW YORK.

THE purpose of this paper is to call attention to the fact that many of the so-called dyspeptic intestinal catarrhs of infancy, commonly looked upon as merely functional in character, produce lesions of considerable moment. These lesions are of importance, not so much in their immediate effects as in their relation to the severer forms of disease, particularly entero-colitis.

My attention was first drawn to these cases by two autopsies made last summer upon infants ten months old. One child died of acute pneumonia without intestinal complications. Throughout the large intestine the solitary follicles were very much increased, both in size and in number. In some places they were so numerous as nearly to cover the mucous membrane. This enlargement was at the expense of the rest of the mucous membrane. The follicles were eroded at their summits in many places, and looked as though they were beginning to ulcerate. Some of these erosions might have been produced accidentally in mounting the specimen, but many were present when it was removed from the body.

During the first five months of life, the mother stated that the infant had never had normal movements from the bowels; the passages were green or greenish-yellow, nearly always containing mucus, but were never frequent, at most three or four daily. The child was nursed entirely, and as the general health did not seem to be affected, and it gained steadily in weight, the mother did not think this intestinal catarrh of sufficient importance to call the resident physician's attention to it, although he saw the infant daily. The passages gradually became normal without treatment, and during the last five months before death had continued so.

The second case was that of an infant who was injured by falling from a window, and died within an hour. In this colon almost the same condition as seen in the first case was found to exist. The patient had never suffered from acute diarrhœa, but for nearly three weeks before death its stools had been very much of the nature previously described. Nor in this case had the mother regarded the fact as of any importance.

Microscopical examination in these cases revealed very slight catarrhal changes, but the important feature was the great enlargement of the solitary follicles.

Further experience in the examination of the intestines in patients dying from other diseases, usually pneumonia, confirmed the impression made by the first two cases, viz., that a dyspeptic intestinal catarrh (I use this term for want of a better) produces, when it is allowed to run on, marked alterations in the walls of the intestine.

If we examine a child's intestine some months after a sharp attack of entero-colitis, we find a very similar anatomical condition.

In cases of acute entero-colitis, dying after ten or twelve days' illness, the most constant change found is swelling of all these solitary follicles with, in many places, the formation of small circular ulcers from the breaking down of these follicles.[1] We conclude then that this condition of the solitary follicles such as we have described as occurring in dyspeptic catarrh, has a very intimate relation to follicular colitis. We may, perhaps, be justified in regarding

[1] Read before the New York State Medical Society, February 5, 1889.

[1] Photographs of specimens illustrating these lesions were shown.

it as identical with the first stage of the ulcerative process. The swelling in both cases is most likely due to the same cause, the absorption of ptomaines produced by the intestinal decomposition.

The intestines of infants are normally peculiarly rich in lymphoid masses, which, in disease, proliferate with great rapidity. These lymphoid nodules play a very important part in the pathology of the intestines in infancy. The enlargements take place here from slight irritation when continued, just as in the lymphatic glands of the neck; all the more readily if the patient is delicate or cachectic.

Turning now from the pathological to the clinical side of the question, what do we find?

Meinert, of Dresden, in a paper published last year, and extensively quoted, states that of four hundred and seventy-nine fatal cases of diarrhœal disease occurring in that city "seventy-one per cent. had previously healthy digestive organs." His information was obtained from the physicians who treated the cases and gave the certificates of death. The information of physicians under such circumstances we may safely assume would relate to acute or severe forms of gastro-intestinal disease, since mothers do not, as a rule, attach any importance to the dyspeptic intestinal catarrh we are considering. We cannot, therefore, it seems to me, attach any importance to Meinert's statistics as bearing upon the point under discussion.

In the New York Infant Asylum we have under close observation nearly four hundred children, most of them from the time they are a few weeks old until four years old. Our experience there has been that the great majority of all severe and fatal forms of entero-colitis in summer are preceded often for weeks by a "dyspeptic catarrh." Very often, I am sorry to say, this fact is not discovered until severe symptoms have developed, so little importance do the mothers attach to the disorder, particularly if the infant happens to be teething.

An idea of the frequency of follicular ulceration may be gained from the following statistics: Of fifty-seven autopsies I have made recently upon children dying from diarrhœal diseases, follicular ulceration existed in nineteen, or thirty-three per cent. of the cases. In almost every case the solitary follicles were very much enlarged. These cases presented clinically about all the types met with, and since they were, with but few exceptions, taken consecutively in an institution where all fatal cases come to an autopsy, they may be assumed to represent pretty fairly the frequency of the different lesions. (I need scarcely say that cases of tubercular ulceration have not been included.)

I will not enter here upon the discussion of the subject of intestinal decomposition and the development of abnormal bacteria, not because I underestimate its importance, but because my present purpose is to emphasize the other aspect of the question. The lesions, while no doubt aggravated and possibly primarily caused by the bacterial growth, when once present favor it to a marked degree.

It has been too much the fashion recently to think only of intestinal decomposition and not at all of the lesions with which it is so intimately related.

I have spoken chiefly, so far, of changes in the solitary follicles. They are never found unaccompanied by catarrhal changes, but the latter are in most instances of a much milder type and not likely to be so persistent. Follicular changes are slow in disappearing. This explains the long continuance of what are apparently very mild cases of intestinal catarrh, and the frequent relapses after more acute attacks.

The practical bearing of the foregoing remarks is evident:

The treatment of follicular ulceration of the intestine is extremely unsatisfactory. I believe that the great majority of these cases are fatal. Certainly, I have never seen at autopsy in a child anything which resembled a cicatrized follicular ulcer.

Successful treatment must be in the nature of prevention.

Prevention must have regard to all the milder intestinal catarrhs.

Regarding neglected diarrhœas during dentition, so much has been said recently that it is scarcely necessary to enter here again a protest. There is to my mind no more reason why an intestinal catarrh should not be treated, and, if possible, cured during dentition than at any other time. The fact that a child with whooping-cough is extremely liable to bronchitis and pneumonia has never been given as a reason why these complications should not be treated promptly and energetically when they arise.

Is an intestinal catarrh ever salutary? This is questionable. A number of loose movements may be of advantage to expel undigested food or other irritating materials from the intestine, but that a persistent intestinal catarrh, even if not severe, is an advantage to any child at any period remains to be proven.

The medical profession should take strong ground against the prevalent popular opinion, that so long as the general health is not affected, an intestinal catarrh is not only of no importance, but may, during bronchitis or dentition, even be beneficial, and that to cure it might be injurious.

It is in such cases as these that though amenable to proper treatment in the earlier stages, when allowed to run on, as they often are for weeks or even months, the foundation for grave and even fatal forms of diarrhœal disease is often laid.

The prophylactic treatment involves then the early recognition and intelligent treatment of all the forms of dyspeptic catarrh; in other words, it

means that we must secure proper digestion, and this depends chiefly upon proper feeding.

Out attention has been repeatedly called of late to the importance of seeing that our milk and other infant foods are pure and free from germs and putrefactive products. This is all important. Another danger which has not been often enough emphasized is overfeeding.

During the past two years I have been trying to get at some exact data regarding the proper amount of food which an infant, who is artificially fed, should receive at the different periods. This has been studied, first, by measuring carefully at autopsies the capacity of the stomach; and, secondly, by weighing healthy infants who were nursed at proper intervals, before and after they were put to the breast.

While I have not yet accumulated sufficient statistics for publication, still enough has been learned so far to show that the figures given in most of our books are altogether too large, and that the vast majority of hand-fed infants are *very greatly overfed.*

Difficulty and failure may result from this fact where every other condition for success has been attended to.

In conclusion I would emphasize the following points:

1. Children should not be overfed at any time, but especially not in summer.

2. At this season, also, every dyspeptic catarrh should be attended to; many of these are promptly curable by merely clearing out the intestine and then cutting down the quantity of food.

3. Should an intestinal catarrh, even a very mild one, continue for two or three weeks, one may be pretty certain that he has something more than a functional disorder to deal with.

4. Every mild catarrh should be looked upon as the possible precursor of a severe type of intestinal disease, either near or remote.

5. In the treatment of all diarrhœal diseases it should be borne in mind that there is something more to be considered than the bacteria and the products of decomposition, viz., the anatomical changes.

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THE DISORDERS OF MENSTRUATION.[1]

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IT is a peculiarity of the functions of the body that, when performed normally, they are performed painlessly and without the knowledge or consciousness of the individual. When an individual becomes aware that this or that function is being performed —that is, when his attention is attracted with an intensity which he cannot dismiss, his emotions being involved to any degree between simple discomfort and the most diabolical pain—there is no question that one of the functions is deranged, disturbed, disordered.

I do not know whether the argument has ever been made that, since it was once said to woman, "I will greatly multiply thy sorrow and thy conception, in sorrow thou shalt bring forth children," therefore it follows that menstruation should be included in the primal curse. Certainly "parturition hath few pleasures," but it cannot be argued from that fact that menstruation should abound in pain.

It has been asserted by various authorities, more as a matter of personal belief and opinion than as a fact founded upon anatomical or physiological conditions, that menstruation is, or always should be, attended with more or less pain; but, with all deference to such authority, that is not my belief—indeed, if it is normally accomplished, it should be as painless as digestion, or secretion, or assimilation. In this opinion I am in accord with Meadows, who made an elaborate discussion of this question in the Harveian Lectures for 1881 (see *Med. Press and Circular*, xxxii. 487).

Menstruation, in its simplest meaning, signifies a discharge of blood, epithelium, and glandular secretions from the uterus, mingled with more or less of the secretions of the vagina and vulva, recurring each lunar month, continuing from three to six days, due to a stimulus which has not yet been absolutely determined, which produces congestion of the entire genital apparatus, and attended by both direct and reflex phenomena which seem to depend mainly upon the congestion. From this definition as a basis, all the irregularities of menstruation may be wrought out.

There have been much patient work and ingenious speculation in regard to the process which actually occurs with menstruation. The subject was deemed of so much importance that a special discussion of it occupied a portion of the attention of the International Medical Congress held at Paris, in 1867, many valuable papers being read and discussed.

Physiologists and clinicians have alike failed to settle conclusively whether the entire mucous membrane is shed with each recurring menstrual epoch, or only certain epithelial layers (Leopold, John Williams, Möricke, Wyder, and others); whether the menstrual discharge means an aborted decidua (Pouchet, Ercolani, Tarnier, Putnam-Jacobi); what may be the influence and bearing of the Fallopian tubes in the matter (Harley, Tait), and many other important questions, into the merits of which it is not intended to go at this time. Beigel's theory concerning menstruation is that it is due to an im-

[1] Read before the New York State Medical Society, February 6, 1889.

pulse in the genital sphere, an expression of which is sexual excitation, just as there is a regular expression of need for rest, food, etc. Hyperæmia follows, especially in the pelvic organs, and menstruation is the result.

Such a theory is too abstract and vague, and demonstrates nothing. A more reasonable theory is that of Pflüger, which makes menstruation dependent upon the maturation of the ova. As the Graafian follicle swells, vasomotor nervous influences are excited, which become diffused through the vascular system and cause congestion. The congestion involves the ovarian circulation, and contributes to the bursting of the Graafian follicle, the liberation of the ovum, and the consequent hemorrhage. This theory is also unsatisfactory, for it requires that ovulation should be attended by external hemorrhage, and it is not impossible that one may occasionally be entirely distinct from the other. Upon this point Dalton ("Report on the Corpus Luteum," *Trans. Amer. Gyn. Society*, ii. p. 111) remarks: "If we regard the rupture of an ovarian follicle and hemorrhage from the uterus in menstruation as two phenomena normally coincident, excited by a common cause, and both subservient to the same general function, we must still recognize the possibility of either one being deranged independently of the other" (p. 137).

Pouchet, who devoted a considerable portion of his life to the investigation of the subject of menstruation, leaving a magnificent memorial of his work in his *Théorie positive de l'ovulation spontané*, was the first one, so far as I can ascertain, to recognize (1847) the analogy between the mucous membrane which is shed from the uterus of all unimpregnated women, to a greater or less extent, each month —the *decidua menstrualis*, and the decidua which forms an enveloping membrane to the fœtus. Or, perhaps, it is more correct to say that he recognized that a decidua is formed each month, which is cast off if impregnation does not occur. His theory of menstruation, like Pflüger's, is that it is dependent upon ovulation, and that the commotion aroused by the maturation of ovules not only excites the genital apparatus, but reacts upon the whole individual (*Op. cit.*, p. 201).

Goodman opposes the ovular theory (*Trans. Amer. Gyn. Society*, ii. p. 650) on the ground that menstruation is presided over by a law of monthly periodicity, which is the resultant and exponent of recurring physiological acts. This law is manifested only in the economy of the female, and in connection with the function of menstruation. He believes that the process by which the monthly cycles are accomplished is seated in the ganglionic nervous system.

Whatever be the correct theory as to the impulse which causes the periodical ovarian congestion, and coincidently the congestion of the other pelvic organs, the most superficial examination of the ovaries shows a relatively extraordinary system of arteries, which one could hardly conceive, by any possibility, to be necessary for the ordinary nutrition of the organs; and, hence, they could only be designed for repeated fluxions and engorgements. The great plexuses of veins contiguous to the ovaries, in the broad ligaments, testify also of the volume and activity of this portion of the circulation, and the possibilities for its derangement. Together with these facts must also be borne in mind the wonderful nerve supply of the ovaries by the renal, the ovarian, and the superior aortic plexuses. Therefore, given a highly congested and engorged ovary, and direct or indirect nerve communication with the most important structures and organs of the body, we can readily understand why so many women are in such a condition of unstable equilibrium with each recurring menstrual epoch, and why so many disturbances in parts remote from the ovaries are properly referred to them as the *fons et origo*.

The argument has been made that the function of menstruation is one which has been engrafted upon women as a result of civilization (Stirton, *Glasgow Medical Journal*, January, 1887, p. 1). In so far as this implies that under favorable environment, which is a very comprehensive term, women menstruate with less inconvenience, and likewise give birth to more and healthier children than under less favorable environment—that is, in the savage or barbarous condition, it is probably true, just as in stock-raising and breeding the results are much more satisfactory, in every way, when the creatures are well-fed and housed; but we must not forget that man is the end of the scale in evolution, and that the higher intellectual faculties seem to be developed at the expense of the lower animal ones. A fish has myriads of offspring, an elephant perhaps one. Your Shakespeares, and Washingtons, and Newtons, and Napoleons, and Goethes, and Carlyles have not been prolific. So of the George Eliots, the Madame de Staels, and the Elizabeth Brownings. That is to say, the greatest intellectual development in women is not favorable to fecundity, and probably is not favorable to ovulation, though the latter statement remains to be proved. The congestions in such women which preponderate are cerebral rather than pelvic; therefore, civilization in its most complete development may be unfavorable to menstruation. Certainly menstruation is not a flower of *modern* civilization, for in almost all nations and races which have left records of their habits and customs this function is referred to. The Bible record of its existence among the ancient Hebrews is clear and explicit, and it is plain that it was not a rudimentary function then.

Instead of regarding menstruation as an engraftment upon civilization, it would seem more reasonable to consider it as the development and perfection of a function associated with the reproductive system which has been observed with greater or less distinctness in almost every variety of animals the habits of which have been subjected to careful study. The testimony in this direction is most abundant and most convincing. The females of certain insects exhibit decided changes of color during the breeding season. In reptiles and fishes the period in which the eggs are deposited is marked by a certain degree of excitement and by hyperæmia of the orifices of the generative canal. Laycock observed that tortoises exhale an odor of musk, and lizards secrete an odorous, fatty liquid when the sexual appetite is aroused, and Darwin observed that during the breeding season the anal scent-glands of snakes and lizards were in active secretion. (See Wiltshire on "Comparative Physiology of Menstruation," *Journ. Comp. Med. and Surg.*, iv. 28; v. 58, 163, 254.) Among birds the reproductive season is marked by brighter plumage in the female than at other times.

Ascending in the scale, we find not only that the sexual appetite is aroused with something like periodicity, but that it is accompanied with more or less discharge from the generative passages, in which the sanguineous elements increase the higher we advance in the scale. With wild animals the sexual appetite is more intense when food and shelter are sufficient. In some of the domestic animals it recurs with a sanguineous or sanguino-mucous discharge with almost as great regularity as in women, and has been thus observed in mares, asses, ewes, sows, bitches, and cats. With animals having hollow uteri the external hemorrhage is less profuse than in those in which the uteri are thick and nearly solid; therefore, while the transudation into the uteri of bitches, sows, and cats may be abundant, the external hemorrhage may be quite insignificant.

In those primates in which the womb most resembles that organ in woman—that is, in the monkeys—the external hemorrhage is quite similar to that which occurs in woman. This fact has repeatedly been observed in monkeys kept in zoölogical gardens, and the bleeding has sometimes been so profuse as to excite marked concern on the part of their keepers. Buffon mentions eleven varieties of apes, baboons, and monkeys, in which menstruation had been observed. To mention, in addition, the names of Cuvier, Saint-Hilaire, Ehrenberg, and Raciborski as observers of facts similar to the foregoing, is sufficient to show that the subject has received critical attention from the most careful and eminent investigators.

Among wild mammalia the analogue of menstruation was observed by Bartlett, a keeper of the zoölogical gardens in London, in elephants, hippopotami, zebras, jackals, and monkeys. Saint Cyr and Fleming, distinguished veterinarians, have published the results of their observations as to the existence of a sanguinolent œstral discharge in the domestic animals resembling the catamenia in women, and they maintain that though it may not be so invariable, so copious, or so well defined as in women, this fact is often due to its retention in the vagina and its passage outward with the urine. Modern obstetricians and clinicians, including Velpeau, Trousseau, Cazeaux, and Tarnier, have all observed the analogy between menstruation in woman and a periodic flow in other mammalia, especially in monkeys and the domestic animals.

It would, therefore, seem warrantable to conclude with Wiltshire, from whose admirable lectures most of the foregoing facts have been obtained (*op. cit.*), that menstruation agrees with other functions of the animal economy in displaying subordination to the law of evolution. It may be indebted to civilization for certain fostering influences, but it does not originate in civilization but in a law which applies to the reproductive system of vast series of types and forms of animal life.

If this review of the comparative physiology of menstruation has seemed tedious, it is hoped that it may not be valueless as an introduction to the consideration of the abnormalities of the function.

Normal menstruation, then, implies a flow of blood sufficient to relieve congestion—but not enough to cause weakness or exhaustion, unaccompanied with pain, by way of the genital passages. Conversely, abnormal menstruation implies an insufficient flow of blood, or an excessive flow—these terms being relative, for *insufficient* and *excessive* vary greatly with individual condition; or it may mean a flow that is accompanied with pain, or proceeds by other channels than the generative passages.

Disorders of menstruation may, therefore, be classified as follows:

1. Amenorrhœa, absence of the menstrual flow.
2. Dysmenorrhœa, the condition in which the menstrual flow is obstructed.
3. Oligomenorrhœa, scantiness or insufficiency of the menstrual flow.
4. Polymenorrhœa, excessive menstrual flow.
5. Atopomenorrhœa, menstruation or a menstrual flow which is out of place, or unnatural, or unwonted. This term corresponds with the expression vicarious menstruation, and its equivalents, ectopic menstruation (Barnes), ataxie menstruelle (Raciborski), xénoménie (Flamant).

The terms metrorrhagia and menorrhagia have been used to signify, respectively, excessive bleeding from the womb irrespective of menstruation, and excessive menstrual flow. I have introduced the

term polymenorrhœa as a substitute for menorrhagia.

The classification which has heretofore been in use, is that which was adopted by Henry Bennett (see *Lancet*, 1852, i. 35, 65, 215, 328, 353) and others, and seems to me to be deficient in definiteness.

Inasmuch as menstruation is influenced to so great a degree by such conditions as race peculiarities, nervous impulses, blood-pressure, heart force, and resisting power of vascular walls—internally, and atmospheric pressure, humidity, heat, cold, and wind currents (that is, by meteorological elements)—externally; we can readily understand why its equilibrium should be so unstable—indeed, there is probably no function that is so delicately poised, which accounts for the fact that we see so many illustrations of menstrual disorders and disturbances.

Certain general principles are usually admitted by those who have investigated this subject, and among them are the following:

1. Races or tribes that are least removed from animals most resemble animals in respect to this function. Thus Stirton (*Glasgow Med. Journ.*, 1887, p. 1) mentions an aboriginal and very degraded tribe in South Africa, of which the women menstruate only at irregular periods. When menstruation is first established the discharge is merely an abundant mucous secretion, and only after indiscriminate intercourse has taken place for some time, does blood appear with the menses, and then only in small quantities.

2. So-called nervous women, or women whose nerves are very readily stimulated or excited, seldom menstruate without discomfort. Such women frequently suffer from dysmenorrhœa, many from oligomenorrhœa. A sudden emotion of joy, fear, or sorrow may check their flow; or it may be brought on prematurely or profusely by lascivious thoughts.

3. Influences located in the vascular system may, in themselves, be sufficient to determine great abnormalities in menstruation. A weak heart forces too little blood into the pelvic channels, the blood-pressure is slight, and the hemorrhage is correspondingly small. Or the heart works violently; as the time for menstruation recurs there is high blood-pressure with abundant power to overcome the resistance of the vascular walls, and the hemorrhage is profuse.

4. Great elevations, in which the atmospheric pressure is greatly reduced, must favor profuse menstruation as the pressure in the engorged pelvic vessels becomes greater than the external pressure. This remark applies more particularly to sudden removals to and short residence in such localities, for acclimation may be readily acquired if no serious disease involving the vascular system exists—in fact, in certain mountainous districts of France and Switzerland it has been observed that the native women are prone to suffer from irregular and scanty menstruation, notwithstanding the low atmospheric pressure.

5. A humid atmosphere is frequently a concomitant and probably a cause of amenorrhœa, or dysmenorrhœa, or oligomenorrhœa, on account of the difference between the pressure of the gases and fluids within the body and the atmospheric pressure. These conditions are frequently observed in women who are about to menstruate at a time when the air is nearly saturated with moisture, also among those who sojourn by the seashore during the summer months, and in connection with ocean voyages. In New York City and probably in any great port of entry, one sees many immigrant women with whom amenorrhœa persists for months after their passage across the Atlantic. It is usually the young and unmarried who are thus affected, and the condition assumes great practical importance from the fact that one is obliged to determine as to the presence or absence of pregnancy.

6. In hot climates women menstruate earlier than in cold. It is not unusual for puberty to be attained between the ages of eight and twelve years in tropical countries, and the well-authenticated stories of precocious maternity which are not uncommon in India, and other countries of that latitude, show the great influence which heat exerts in developing and maturing animal as well as vegetable life. Rouvier, in an excellent statistical paper concerning menstruation among the heterogeneous population of Syria (see *Ann. de Gyn.*, 1887, xxvii. p. 178), states that among 742 cases of women of ten Oriental nationalities seen by him in a professional capacity in the city of Beyruth, the average age at the first menstruation was twelve years and ten months. The youngest menstruated for the first time at the age of nine and the oldest at nineteen. Among the Bedouins he found that menstruation began at the age of eleven. Menstrual life, according to Wiltshire (*op. cit.*), is usually begun in the summer-time, and the same author thinks that the seasonal influence underlies the genesial influence in all creatures, and is a trace of a primordial condition governing reproduction. Heat is also an influence which tends to shorten the menstrual life. It is said that some of the Arab women cease menstruating between the ages of twenty and thirty (see *Real Encyclopædie*, article "Menstruation").

Cold—that is, extreme cold—is an agent which at all times and in all latitudes is unfavorable to the regular and easy performance of the menstrual function. As one travels toward cold climates the establishment of the function seems to be proportionally retarded. In northern European countries it is

not at all uncommon for females to menstruate for the first time at the age of seventeen or eighteen, as the statistics of Leudet's table show. This was published in the *Transactions of the International Medical Congress* held at Paris in 1867 (p. 162) and the following are some of its important statements:

Average age for the establishment of menstruation from a large number of observations in:

	Years.	Months.
Swedish Laponia	18	
Copenhagen	18	9
Norway	16 to 18	
Göttingen	16	
Stockholm	15	6
England	15	6
Bombay	13	
Calcutta	$12\frac{4}{10}$	

Heinricius examined the histories of 3500 women of the working class in Finland, and found that in that cold country the average age for the first menstruation was fifteen years, nine months and twenty-five days (*Centr. f. Gyn.*, 1883, vii. 72).

It is thus an unquestionable fact which entirely controverts the opinion of Bennett (*op. cit.*) and others, that the influence of climate upon the menstrual function has not been exaggerated. Hennig is responsible for the statement (see *Centr. f. Gyn.*, 1887, No. 17, p. 274) that the Greenlanders and Laps menstruate only once in three months, and the Eskimos not at all in winter; also, that the women of Terra del Fuego do not menstruate at all or only infrequently during the winter. The effect of cold in suddenly checking the menstrual flow, illustrations of which are common enough among washerwomen and others who intentionally or unintentionally disregard the proper precautions against disturbance of the menstrual flow, is well known; and the subsequent pain and annoyance which frequently result, are equally familiar, and furnish an instructive commentary upon the fact that nature imperiously demands compliance with her laws, ignorance not being a valid excuse for their violation.

Returning again to the classification which was proposed, disorders of menstruation are to be considered as:

1. Amenorrhœa (ἀ not, μῆνος monthly, ῥεῖν to flow).
2. Dysmenorrhœa (δύς bad or difficult, μῆνος monthly, ῥεῖν to flow).
3. Oligomenorrhœa (ὀλίγον a little, slightly, μῆνος monthly, ῥεῖν to flow).
4. Polymenorrhœa (πολύ much, abundantly, μῆνος monthly, ῥεῖν to flow).
5. Atopomenorrhœa (ἄτοπον out of place, unwonted, μῆνος monthly, ῥεῖν to flow).

I. *Amenorrhœa* means absence or disappearance of the menstrual flow. This condition obtains with those who have passed the menopause, whether in the ordinary course of nature, or as a result of disease or traumatism. In some cases, no valid cause for its existence is discoverable. The term is not strictly applicable to those with whom the menstrual secretion is retained within the pelvic organs on account of obstruction of various kinds. It may be temporary or intermittent, as in the case of those who dwell in a very humid atmosphere, or in very cold climates, in connection with the pregnant state, in wasting diseases, etc.

The question has often been raised, whether amenorrhœa has any significance or influence upon the general health. In my opinion, its influence in this direction may be decided, but I am familiar with cases in which it has existed for periods of five to seven months, in which the cause could not be ascertained, the patients enjoying the best of health during these periods, and showing no substitute for menstruation by abnormal bleedings or other phenomena. Such patients usually consult the physician under the superstition that continued absence of the menstrual flow may be an indication of approaching pulmonary phthisis. One hundred and fifty years ago this question was elaborately discussed by Senfft, in a Latin treatise published at Leipzig. (An fœmina sine catameniorum fluxu perfecta frui possit sanitate, Lipsiæ, 1740.)

Whether menstruation coincides invariably with ovulation is at present immaterial, though we know from the vast experience which has accumulated since the era of abdominal surgery began, that with the removal of the ovaries menstruation ceases in the majority of cases after a short period. It seems evident that the monthly flow is the medium by which the recurring congestion of the pelvic organs is relieved, whether directly associated with the discharge of an ovum or not. If the congestion does not recur, whatever be the cause, amenorrhœa is insignificant; if it does recur, it must follow the law which governs congestion in other parts, and unless relieved by the emission or dispersion of the blood, trouble must invariably result. Such trouble will be indicated by a sense of pain and fulness in the pelvic region; by pain in the loins from involvement of the renal plexus of nerves; and by pain in the head from communication with cerebral nerves and centres. That such communication exists, is demonstrable by the pain in the head, especially in the occipital region, which is frequently elicited by the pressure of the examining finger upon inflamed circumuterine tissues.

Amenorrhœa is not usually annoying to those who suffer from pulmonary phthisis and other wasting diseases. Dalton has reported cases in which it existed in young women for many months before death as the accompaniment of disease of the liver, kidneys, or heart. It is usually troublesome in

young women with whom menstruation is not fully established, and in those cases in which there is mechanical obstruction of any kind to the passage outward of the blood from the vessels. Not infrequently atopomenorrhœa results if mechanical obstacles to the normal outflow are present.

II. *Dysmenorrhœa.* This term, as it is commonly used, is the least exact of any of the terms in the proposed series. It is almost invariably associated in the mind of the physician with pain, and yet, there are doubtless many cases in which there is difficulty in relieving the engorged vessels during menstruation, true dysmenorrhœa, in which there is little, if any, pain. The term includes those cases in which, though there is a flow of blood, the blood is ejected or emitted with difficulty. In its broadest sense, dysmenorrhœa is the condition which is opposed to normal menstruation. and in that sense it includes all the disorders of menstruation. The causes of the difficulty may be mechanical or chemical—that is, the fault may either be in the blood or in its surroundings, and pain is not infrequently a symptom or announcement of the condition. The pain may be referred to the region of the uterus and be of a grinding, bearing-down character; it may be in the loins, in the back of the neck, in the head, etc. There may be a general feeling of discomfort with soreness of the muscles and joints; there may be nausea and vomiting; and there may even be violent mental agitation. The influence of the nervous system in this condition is profound. Phlegmatic women seldom suffer from any of the foregoing symptoms during menstruation, unless there are serious mechanical obstructions to the outflow of the blood. On the other hand, sensitive and hysterical women are almost always dysmenorrhœacs.

We hide our ignorance of the occult anatomical lesions which exist in these cases, by saying that the phenomena are the result of temperament. The truth probably is, that there is no complaint or disorder from which organized beings suffer, whether in great or small degree, which has not its correspondent molecular derangement somewhere, though it may be beyond the power of demonstration by mind and microscope. The mechanical causes of dysmenorrhœa are far more common than the chemical—in fact, it is difficult to conceive of dysmenorrhœa in which the mechanical element plays no part.

In the weak and flabby uteri of young women with poor nutrition and over-stimulated brains we find dysmenorrhœa associated with deficient arterial tension. There is insufficient force to expel the blood through the distended veins and capillaries, or the uterus with its weak and imperfectly nourished muscle contracts too feebly upon the exuded blood to force it out of the uterine cavity. Similar difficulties in the vascular apparatus obtain in the heavy and boggy uteri of subinvolution. In anterior and posterior displacements the blood may be confined in the uterine cavity, and the force of contraction be spent at mechanical disadvantage in removing it. In certain forms of intra-uterine tumors similar accumulations and inefficient contractions may also exist and dysmenorrhœa with its attendant phenomena result. Obstruction may also be caused by hypertrophied mucous membrane constituting the so-called membranous dysmenorrhœa.

Again, dysmenorrhœa may arise in connection with various atmospheric conditions, such as have been enumerated in a preceding paragraph. The chemical condition of the blood may also be such as to prevent free transudation from the vessels during menstruation. Theoretically, an excess of the albuminous or fatty constituents with imperfect assimilation, a superabundance of corpuscles with corresponding deficiency of water and high specific gravity, may all act as sufficient causes of dysmenorrhœa. The same may be said of blood in which large quantities of sugar, pigment, parasites, and other foreign matters are circulating. In all such conditions, we should have a circulating fluid with increased specific gravity, and in so far as menstruation is dependent upon osmosis the fluid would transude with more than ordinary difficulty. I admit that this is entirely theoretical and know of no investigations which have been made upon the subject, but it seems to be in accordance with physical laws. Dysmenorrhœa, therefore, is not a single symptom but a complex of symptoms. It is not a disease as that term is ordinarily understood, though it is a morbid condition.

III. *Oligomenorrhœa.* The condition in which the monthly flow of blood is too scanty to relieve the pelvic congestion is very frequently associated with dysmenorrhœa, and in such cases presents more or fewer of the symptoms which are common to that condition. The term is relative, for the loss of a few drachms of blood in some individuals is all that seems necessary to restore the normal tension to the pelvic vessels. With such persons there may be no symptoms of dysmenorrhœa, and while they may enjoy a fair degree of health they are more frequently women with phthisis or anæmia, or some other constitutional vice.

Oligomenorrhœa sometimes persists during the pregnant state, recurring at that time in the month when the ordinary menstrual flow was wont to appear. It may occur in connection with deformities or want of development of the uterus or ovaries, or during the latter portion of menstrual life, and in such cases may be unaccompanied with dysmenorrhœa. Oligomenorrhœa with dysmenorrhœa is frequently present in cases which offer decided mechanical obstruction to the menstrual flow, as in cases of exaggerated anteflexion, and less frequently in cases of marked

retroflexion. It is frequently present in women who are very fat, whether the latter condition be one which has persisted from childhood, or has occurred, as is frequently the case, as the consequence or result of numerous pregnancies in rapid succession. In the oligomenorrhœa of anæmic women, the blood contains comparatively few corpuscles and is mostly serum. It serves as a fair index of the character of the blood which is circulating in the patient.

IV. *Polymenorrhœa.* This is also a term which must vary in its significance with the individual. I have seen women who bled profusely for days and weeks, some days losing at least a pint of blood, and yet preserving a ruddy complexion and a fair degree of strength. The losses of blood which are frequently sustained in connection with uterine cancer, polypi, and other neoplasms, before the evidences of the drain upon the resources appear upon the skin, or in the waning powers of endurance, are sometimes almost incredible. Polymenorrhœa is also a very common occurrence as the menopause approaches. At such times it is frequently associated with developing malignant disease, and in certain quarters, both lay and professional, the latter is looked upon as a necessary accompaniment of the menopause, hence it is termed "the critical time." It is critical simply in individual cases, not because it is nature's method to terminate the history of a function with a series of bloody inundations; it is no more critical than any other period of menstrual life, unless there is a foundation of disease which can be favored and encouraged by the changes in tissue vitality which characterize the approach of old age.

Again, every gynecologist sees plenty of weak and anæmic women who give no history of losses of large quantities of blood, and yet the loss of a few ounces with each recurring period brings them to the verge of collapse. Such cases require active treatment quite as much as those in which the quantity lost is far greater. The blood-making powers of the latter are far more active than those of the former. It may generally be assumed that a menstrual period which continues longer than a week, has abnormal conditions associated with it, and should be stopped. This is especially true if the flow has been profuse, and though the patient may for a time see nothing in her condition to disturb her, with the exception of the annoyance which attends frequent and protracted bleedings, her vitality will eventually be sapped by the continuance of such a condition, and hence the sooner its cause is discovered and remedied, the better. Those who bleed for long periods of time, at regular menstrual intervals, will sooner or later be bleeding at irregular intervals unless relieved, and it is the part of wisdom and conservatism to investigate in all cases, as soon as possible, after the polymenorrhæa has been established.

One of the most common causes of this condition is carcinoma. For a long time the bleeding may not be due to sloughing and rupture of vessels connected immediately with the disease, but to the increased uterine congestion which attends its development. Other malignant diseases of the uterus produce excessive bleeding in the same manner as carcinoma—that is, by increasing to a very great degree the volume of blood which is directed to the organ; but they are far less common than carcinoma. Benign growths occupying the interior of the uterus, or imbedded in its muscular structure, are almost always a cause of polymenorrhœa, especially if near the trunk or main branches of the uterine artery, and it is perfectly intelligible that this should be the case.

Various diseases of the lining mucous membrane of the uterus, apart from the malignant diseases, are prolific sources of polymenorrhœa. Modern surgical gynecology has done much to relieve such conditions which were once as fatal as cancer, and with the imperfect methods of examination formerly in vogue were probably diagnosticated as cancer.

There are also certain occupations which seem to favor excessive bleeding at the menstrual period, and we may be unable to find any evidence of disease in the uterus or its surroundings in those who are thus suffering. Occupations in which the individual is constantly exposed to a very high temperature have this tendency, and I have seen a number of cases among cooks and laundresses. Among prostitutes and others who have greatly abused the sexual act, polymenorrhœa is also of frequent occurrence.

When we think of the great progress which has been made in recent years in the diagnosis of so many conditions which have excessive uterine hemorrhage as the chief symptom, and the means which have been devised for their effectual relief, there is cause for profound gratitude.

V. *Atopomenorrhœa.* This term includes every variety of monthly flow, or substitute for the monthly flow by any other channel than the one which nature designed for that purpose. The term *vicarious* menstruation is a very awkward one, and properly means the menstruation which one person suffers or experiences for another. This is, of course, an absurdity, and only by twisting the term from its proper significance can it be understood as referring to menstruation which occurs through abnormal channels. The term xenomenia, which was proposed by Flamant, in 1720, is a good one, and is etymologically correct, but for the purpose of uniformity perhaps the more clumsy term which I have suggested would be preferable.

A common form of atopomenorrhœa is the bleeding from the nose which occurs with young girls during the first few months of puberty. It usually

requires no treatment, and may be considered as a means of relief to a congestion which is displaced. Bleeding from the anus, especially in those who suffer from hemorrhoids, is another form of this condition, which is perfectly intelligible, and may usually be relieved by the destruction of the enlarged veins. Other abnormal bleedings which may occur with the normal menstrual flow or in the absence of it, are bleedings from the lungs or stomach; bleedings into or through the skin or mucous membrane in the form of purpura and various extravasations and transudations; bleeding in connection with acne, nævi, ulcers, and fistula; bleedings from the gums, the nipple, the anterior chamber of the eye, the external auditory meatus, and other places.

The foregoing facts seem to prove that the monthly congestion in women, whatever be its cause, is not local, but general; or, at any rate, that the vascular tension at such times is raised, so that veins and capillaries which are near the surface are much more liable to rupture than under the ordinary conditions of tension and pressure.

159 EAST THIRTY-SEVENTH STREET.

IDIOPATHIC ACUTE PAROTITIS; SLOUGHING OF THE ENTIRE GLAND; RECOVERY.

BY RICHARD H. DAY, M.D.,
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THERE is but little said in our standard authors, or in the current periodical medical literature of the day, on parotitis; and what little is said, applies more especially to its occurrence in its specific character, under its common form of mumps.

Bryant, in his *System of Surgery*, treats of it simply in its specific form, but says, "when it follows upon a fever, it is a severe affection, and not unfrequently passes on to suppuration; such abscesses spread easily, the deep fascia covering them in, forbidding a natural outlet except by burrowing."

Wythe in his recent text-book on surgery, in a few lines only, writes of it as parotitis, or mumps, but adds: "abscess may occur after an acute inflammation of the parotid from traumatism, or as a complication of the eruptive or continued fevers. Under these last conditions, the prognosis is always grave."

Gross, in his comprehensive work on surgery, is much more full and clear, and I must be allowed to make a rather lengthy abstract, from the work of this great author, since it conveys more information upon this grave form of parotitis, than is to be derived from any other source. He says:

"Abscess of the parotid is nearly always of an acute character; being usually a result of simple inflammation, local injury, erysipelas, typhoid fever, smallpox and other eruptive diseases. Sometimes the swelling is remarkably diffused. The fluctuation is generally very obscure on account of the manner in which the contents of the abscess are bound down by the cervical fascia and the capsule of the gland. Owing to this circumstance, the true nature of the disease is apt to be overlooked, and the pus allowed to burrow about in different directions; thus producing the most serious mischief, opening, perhaps, after having induced the most violent suffering, into the auditory tube, or extending down the neck along the great vessels, and causing extensive havoc in the connecting cellular tissue. In some instances the fluid passes round the trachea, and finally destroys life by bursting into the chest.

"*Gangrene.*—Mortification of this gland occurs chiefly in erysipelas, typhoid fever, scarlatina and smallpox. Fortunately, however, it is very rare in any form of the disease. The sloughing is usually most extensive in the connecting cellular tissue, but occasionally it affects the glandular substance also, which it may completely destroy, as I have had occasion to observe in several cases. In one of these not a vestige of the organ was left, its former site presenting a deep hollow extending down to the ramus of the jaw and the auditory tube."

It is thus seen that however simple and unimportant specific parotitis may be, and is, as it is usually observed; when it occurs as the sequel of the eruptive or continued fevers, or of pyæmia, as in the case of the lamented Garfield, it may become a disease of the gravest character, and develop the most serious consequences.

The case that I have now to report differs in its etiology from any of the cases spoken of by these authors in that it was not a sequence of any eruptive or continued fever, nor the result of pyæmic poison, neither was it specific in character; but, as will be seen, was an acute idiopathic inflammation of the parotid gland; autogenetic in origin and resulting in the complete and entire sloughing of the gland. As such, I report it as a complement to the meagre and incomplete history and literature of acute parotitis.

The subject in whom it occurred was K. P., a mulattress, aged about thirty-two years, a native of Baton Rouge, La. She is the mother of two children; the elder if living, would now be about sixteen years old, having died in 1878, when five years of age—cause of death continued fever, resulting in inflammation and ulceration of the right side of the face, and terminating in gangrene of the soft parts and necrosis of the maxillary bones. The younger child is now seven or eight years old, and appears to be in the enjoyment of good health. I have known this woman, since her childhood. She is tall and spare, and has always been delicate. She is thin in chest, and is of a strumous or scrofulous diathesis.

On this occasion I was called to see her on August 23, 1888, and finding her under the treatment of another physician, I withdrew, making no examination into her condition.

On the 25th I got a note from her doctor request-

ing me to see the case with him. I found the left parotid very much swollen, very hard, and exquisitely painful; and the whole integuments on the left side from the chin, back to the mastoid and down to the clavicle, diffusely inflamed, and so extremely sensitive that the softest touch produced the most excruciating pain. The pulse was small, frequent, and feeble, and accompanied with great systemic prostration. I advised the application of a hot flaxseed poultice over the gland and inflamed integuments; chloral and morphine to ease pain and procure sleep; a liquid nutritious diet, and enemata as might be required to move the bowels, and five grains of quinine to be given three times a day.

On the 13th of September I was again sent for, and requested to take charge of the case, the attending physician consenting and relinquishing all further control. I found the patient much exhausted and reduced in flesh from constant excruciating pain and inability and disinclination to take food. The gland and integuments were still inflamed and more distended and painful, with obscure fluctuation at two points (*a*) at the upper edge of the gland and (*b*) below the angle of the jaw. The doctor preceding me had supposed the case to be abscess in the mastoid cells, and had made a free cut down upon that process, but without finding any pus. I made a free incision at the two points designated; from the upper one, I suppose about a tablespoonful of ill-looking thin pus escaped; from the lower opening, only a little thin sanious fluid exuded.

These incisions into the parotid revealed the fact that the entire gland was in a sloughing process, that it was necrosed, and undergoing disorganization. I could with gentle force pass a silver probe in different directions through the gland, causing not as much pain as was induced by touching the investing integuments.

My course was a plain one. Support the patient's strength, quiet pain, disinfect, and promote as fast as possible the sloughing and separation of the necrosed gland. To accomplish the first indication, I insisted upon the regular and frequent administration of cow's milk, beef broth, Ducro's elixir and port wine, and small doses of quinine three times daily; for the second, fifteen grains choral with one-quarter grain morphine were given as needed, both to ease pain and to procure sleep at night; and for the third indication, I used a flaxseed and charcoal poultice applied warm and made fresh three times a day, and injected into the upper opening a weak solution of carbolized oil at each dressing.

I was assisted by a good nurse, who carried out my instructions faithfully; and every alternate day I made a visit and removed with forceps and scissors such portions of the gland as I could draw through the opening, and that were manifestly dead.

On the 20th of September I lifted out through the upper opening the entire remnant of the gland in a coherent mass, which had been completely detached by the *vis medicatrix naturæ*, leaving a deep sulcus, or hollow, extending down to the underlying bloodvessels. This cavity I had syringed out daily with a weak solution of carbolized oil, and applied over the integuments a thick pad of carbolized absorbent cotton and oakum, so as to press the surfaces together, to exclude the ingress of air and facilitate granulation. The dietetic treatment was continued, and the chloral and morphine were dispensed with. In addition, I now put my patient upon cod-liver oil, which I found of great benefit. The cavity gradually closed and healed over, the patient in the meantime improving in flesh and strength, and finally was restored to her customary health; leaving however, a deep and marked depression in the site of the missing parotid.

I look upon this case as not without interest to the medical profession: 1st. In its unmistakable autogenetic origin; 2d. In the entire and complete sloughing away of the gland by a gangrenous process, a very rare occurrence; and 3d. In the final good result of the case, and the restoration of the patient to her former, if not even better, health.

MEDICAL PROGRESS.

The Treatment of Diphtheria with a Spray of Hydronaphthol, Papain, and Hydrochloric Acid.—Dr. W. C. Caldwell, of Chicago, assumes:

1. That diphtheria, at first like wound and puerperal sepsis, is a local disease, and that the temperature is due to the absorption of leucomaines. It is probable that later the microbe of septicæmia, and possibly the microbe of diphtheria, may enter the blood and produce a general disease, the temperature being due in part to the leucomaines produced by the microbes which are multiplying in the blood and lymph

2. It is probable that the pseudo-membrane is over the site of local primary infection, and that in it and specially beneath it in the lymph spaces of the submucous tissue are the invading bacteria of diphtheria.

Hence, if diphtheria is at first a local disease, and later may become a general disease, either a septicæmia or diphtheræmia; and if this local infection is accompanied by a pseudo-membrane which covers over the invading bacteria, the indications for treatment are the prompt, frequent, and effective application of remedial agents which will—

First. Remove the pseudo-membrane, so that the bacteria can be reached; and,

Second. Arrest the growth of the bacteria.

For convenience, the author prescribes these drugs in the same mixture; but it should be remembered that they must not neutralize each other's actions, or in any way be incompatible. An antiseptic and peptonizing agent might act powerfully when used separately, but might be inactive when in the same mixture. Pancreatin is an active peptonizer, but it can only be used with an antiseptic which can act in an alkaline menstruum; hence, it cannot be used with bichloride of mercury. Dr. Caldwell has not tried pepsin in combination with an antiseptic. Papaïn acts in an acid, neutral, or alkaline menstrua, and hence it is more available for combination. Bichloride of mercury is a powerful antiseptic in neutral and acid menstrua, but it not only arrests the growth of the bacteria, but also, to a certain extent, the peptonizing ferment. At least it has this effect in artificial digestion; however, the author used it with papaïn

in one case of diphtheria for twenty-four hours. The pseudo-membrane was readily dissolved, and the temperature fell from 103° to 99° from 9 A.M. to 6 P.M. But there is another and far more serious objection to bichloride of mercury, and that is the danger of mercurial poisoning.

Hydronaphthol is also a powerful antiseptic which acts in either a neutral or acid menstrua, and, besides, is not poisonous. No experiments on artificial digestion in the presence of hydronaphthol were made; however, when used with papaïn to spray the throat in diphtheria the membrane rapidly dissolved.

The treatment of the seven cases consisted of—

1. Keeping the bowels open.

2. Ingestion of two to six ounces of milk every two hours. The papaïn probably greatly aids the digestion of the milk, for most of it is swallowed.

3. Spraying the throat every half hour till the temperature is reduced and breathing is easy; then every hour, unless asleep. In these cases, when the spray was used thoroughly, the temperature fell in from four to eight hours. It is probable that the temperature was due to leucomaines only, and that had the treatment been delayed till there was general infection the spraying would would have had much less effect on it.

The following is the prescription for the spray used in these seven cases:

℞.—Papaïn	. . . . .	ʒij.
Hydronaphthol	. . . .	gr. iij.
Acidi hydrochlorici dil.	. . .	gtt. xv.
Aq. destil.	. . . .	ad. ℥iv.—M.

It is no easy matter to apply the spray properly—that is, to the site of infection. It requires three persons to spray the throat effectively, especially when the larynx is involved. One person firmly holds the child in a semiprone position; another depresses the posterior portion of the tongue, rendering accessible the structures involved, both by lowering the tongue and raising the larynx; and the third uses the hand-atomizer rapidly for a few seconds. The child is then given a little rest, and this procedure is repeated several times.—*Archives of Pediatrics*, February, 1889.

Glycerine Suppositories.—DR. SCHAFFER substitutes for glycerine-injections glycerine suppositories made from the ordinary glycerine soap. This soap contains from 20 to 35 per cent. of glycerine, and the suppositories made therefrom have, according to his experience, answered all requirements.—*Münchener med. Wochenschrift*, January 15, 1889.

Liniment for Nephritic Colic.—

℞.—Chloroform	. . . .	15 parts.
Extract of hyoscyamus	. .	15 "
Laudanum (Sydenham)	.	5 "
Oil of chamomile	. . .	150 " —M.

Rub well over the seat of pain.—*L'Union Médicale*, January 24, 1889.

Suppurating Hydatid of the Abdomen Treated during Pregnancy.—In the *Australian Med. Journal* of last month, Mr. Girdlestone records an interesting case of hydatid cyst of the abdomen which required treatment during pregnancy. The patient, aged thirty, had noticed swelling of the abdomen nine months previously, or two months after the birth of her last child. This swelling had been tapped four times. The diagnosis of hydatid was confirmed by the character of the fluid withdrawn; but on admission her temperature and symptoms pointed to suppuration of the cyst. A rounded tumor could be felt in the abdomen projecting against the anterior wall, its upper limit reaching above the umbilicus; it was slightly movable. Mr. Girdlestone passed three long steel acupressure pins, and inserted each of them deeply through the abdominal wall, then through the front of the cyst, bringing the points out through the skin on the opposite side of the tumor; the pins were parallel to each other and three-quarters of an inch apart. Some silk ligature was then twisted round them in the form of the figure 8 over the skin, so as to retain the cyst in contact with the peritoneal lining of the abdomen with a moderate amount of pressure. On the following day the silk ligature was divided, the centre pin withdrawn, and the cyst opened by an incision which extended between the remaining pins. The wall of the cyst was then attached to the skin by four interrupted wire sutures, and the contents evacuated. A large drainage tube was inserted, and retained by fastening it to the wire sutures; the remaining pins were now removed. The cyst was washed out with perchloride solution and dressed antiseptically with iodoform. Recovery was uninterrupted; the wire sutures were removed at the end of a week, and the cavity gradually closed. The operator was led to employ the long pins in order to procure more certain adhesion of the cyst to the abdominal wall, having had a case of somewhat similar kind in which, from some unexplained cause, the cyst became detached at the end of three weeks and the patient died of peritonitis. Another advantage claimed is the possibility of using the scalpel instead of the trocar, thus giving free exit to the contents of the cyst.—*Lancet*, Jan. 26, 1889.

Milk in Infant Feeding.—DR. T. M. ROTCH states (*Boston Med. and Surg. Journ.*, Feb. 7, 1889) that his own belief has long been, that practically for the successful feeding of the young infant with cow's milk (so far as the coagulum is concerned) it is quite as, if not more, important to consider that the total amount of these nitrogenous matters being two to four times as great in cow's milk as in human milk, it is more practical to dilute these matters in cow's milk until the dilution corresponds to that found in human milk, and that then the coagulum will be found to correspond very closely to that of human milk, and will not require to be broken up. An instance which seems to show that this reasoning is practical has recently came to his notice. It is often stated that the curd of human milk is small, soft, and easily broken up, while that of cow's milk is large, tough, and tenacious, so that we should add something to the latter to make the curd fine and friable. These characteristics of the two curds I have found to be present where the milk is in a comparatively normal condition as to the percentage of its albuminoids.

When, however, the percentage of albuminoids in human milk reaches that which exists in cow's milk, we find a curd with the characteristics of cow's rather than human milk, as he found exemplified in the following instance referred to above. An infant seven days old,

and unusually vigorous and well developed, was provided with the milk of a healthy wet-nurse, who had been accustomed to plain but good food. An analysis of the milk made just before it was given to the infant showed the albuminoid percentage to be 2.53 and the water 89.78. The milk was digested perfectly, and the infant throve for the following three weeks. During these weeks, however, the diet of the nurse was changed from the plain food to which she was accustomed, to a much greater variety and amount, and to very rich milk, her usual exercise also being lessened. The infant then began to vomit thick curds identical in appearance and toughness with the curds of cow's milk. An analysis of the milk was then again made, and the albuminoids found to show the high percenage of 4.61 and the water to be 83.50. The nurse was then fed on plainer food and skimmed milk, and the infant soon ceased to vomit. A third analysis of the milk now showed the albuminoids to be decreased again to 2.9.

Dr. Rotch concludes that until something more definite is known concerning this rather theoretical method of treating the albuminoids of milk, that dilution with plain water is the most practical and efficient means at our command.

Menstruation a Contraindication for the Administration of Antipyrin.—DR. H. HUCHARD reports in the *Revue Générale de Clinique et de Thérapeutique*, Jan. 24, 1889. the following case: A few months ago he administered to a woman suffering from severe dysmenorrhœa fifteen grains of antipyrin. After a short time the menstrual flow ceased, the patient being taken with a severe chill, with chattering of her teeth, and the extremities and face becoming cold and cyanotic with repeated fainting fits and syncope. Soon the face became red and flushed the pulse small and soft, the patient complained of severe headache. She recovered. The author observed several other cases with less severe symptoms and has since then not administered antipyrin during the first two or three days of the catamenial epoch.

Perforation of the Vermiform Appendix; Laparotomy; Recovery.—DR. ARTHUR M. JACOBUS reports a case of this and concludes his study of the subject with the following summary:

1st. That typhlitic diseases are intra-peritoneal; that in nearly every instance they originate in inflammation or perforation of the appendix or cæcum, usually caused by fecal impaction or foreign bodies; that even though these diseases frequently do not primarily end in suppuration, still their tendency is to recur and eventually end fatally by septicæmia, or shock from ruptured abscess, or purulent peritonitis.

2d. That, in view of the foregoing, all diseases of this region giving symptoms of inflammation or peritonitis, without regard to the question of pus or abscess, and which do not yield promptly to the modern medicinal treatment and are progressive, should be treated by laparotomy at the earliest period possible.

3d. That when peritoneal or intestinal adhesions or pus-sacs exist, they should always be broken up, the abdominal cavity thoroughly douched with sterilized plain water, at a temperature of 105° F., the wounds sutured, and the cavity drained by glass tubes.

4th. That, excepting in undoubted cases of simple post-cæcal abscess unaccompanied by peritonitis, the incision should be made either vertically over the caput colli (after Sands), or, in the linea alba, below the umbilicus, and preferably the latter operation when extensive peritonitis or adhesions are suspected.

5th. That, whether in operative cases or not, opiates should be used as little as possible; but, on the other hand, saline or vegetable cathartics (followed by enemata) should be used from time to time, to relieve the inflammation, tympanites, pain, and fever, and particularly to drain the peritoneal cavity of serous or purulent effusion.—*Medical Record*, February 2, 1889.

Treatment of Nasal Affections.—DR. COZZOLINO, of Naples, recommends for the various affections of the nasal passages the following compounds:

For scrofulous rhinitis:

℞.—Sulpho-carbolate of zinc . . grs. v.
Salicylate of bismuth . . grs. lx.
Iodol . . . . . grs. vl.
Tannate of zinc . . . . grs. xxx.
Powdered talc . . . . grs. cl.—M.
Use as a snuff.

Chronic catarrhal rhinitis.

℞.—Powdered alum, Borax } . . . 30 grs.
Menthol . . . . . 3 "
Tannate of zinc, Tannate of bismuth } . . . 45 "
Lycopodium . . . . ʒij.—M.

or

℞.—Salicylate of zinc, Tannate of bismuth } . . āā ʒj
Powdered borax . . . 30 grs.
Salol . . . . . 23 "
Powdered talc . . . . ʒij.—M.

Simple acute catarrhal rhinitis.

℞.—Chloride of ammonium . . grs. 45.
Salicylate of sodium . . . grs. 30.
Chloride of potassium . . grs. 45.—M.
To be used as a snuff.

Hyperæmic swelling of the nasal mucous membrane.
A frequent cause of reflex disturbances.

℞.—Glycerin, Water } . . . . āā ʒiv.
Alcohol (rectified) . . . ʒiss.
Menthol, Cocaine } . . . . āā grs. 3.—M.
Use three to four times daily.

Very acute coryza.

℞.—Water, Alcohol (rectified) } . . ʒiv.
Carbolic acid . . . . ʒss.
Menthol . . . . . grs. iv.
Salammoniac . . . grs. 23 to 30.—M.
Inhale.

Powders are best adapted to treating the nasal passages, as they remain longest in contact with the mucous membrane.

For epistaxis, the best new surgical remedy is the hot douche of 122° to 140° F.—*Bull. Médical*, and *Deutsche med. Wochenschrift*, Jan. 24, 1889.

Myrtol as a Disinfectant of the Respiratory Passages.—DR. EICHHORST, (*Ther. Monatshefte*, January, 1889) recommends myrtol as a disinfectant of the respiratory passages.

Myrtol is a clear fluid, has a refreshing odor, and is that portion of the myrtol oil which melts at 158° to 170° Fah.

It is best administered in capsules containing 2½ grains each, of which from two to three are taken daily. One hour after its administration its odor is perceptible in the patient's breath. The curative effect is said to be rapid, especially in putrid bronchitis and pulmonary gangrene. Myrtol exerts no action over the tubercle bacillus. The intestines of patients who have died while taking this remedy retain the order of myrtol for some time.—*Wiener klin. Wochenschrift*, January 17, 1889.

Mechanical Treatment of Tabes Dorsalis.—A singular method of treating cases of locomotor ataxy has, during the past three months, been tried at the Salpétrière, and the results have been so satisfactory that M. CHARCOT recently devoted one of his lectures (*Progrès Médical*, Jan. 19th) to the subject, demonstrating the cases so dealt with. The practice is not absolutely novel, since in 1883 it was brought forward by Motchoukowsky of Odessa, who claimed that twelve tabetics had been greatly benefited by it, and also that the plan was of use in cases of sexual impotency apart from tabes. Last year M. Raymond, when on a visit to Russia, heard of the practice, and introduced it to M. Charcot's notice, and, as above said, it has been adopted in M. Charcot's wards during the past three months, the "chef de clinique," M. Gilles de la Tourette, superintending it. It simply consists in suspending the patient by means of Sayre's "jury-mast" for a period beginning with a duration of half a minute and progressively increasing up to three or at the most four minutes, an interval of two days occurring between each suspension. In order to exert greater traction on the spinal column, it is well to raise the arms every fifteen or twenty seconds. Eighteen tabetics have thus been treated, embracing about 400 "suspensions." Excluding four who were not suspended more than three times, the improvement was marked in fourteen, and eight of these most remarkably. They were all confirmed cases, and had mostly been treated by cauterization along the spine. Almost from the commencement of the suspension treatment the patients would improve in walking—an improvement at first temporary, but after eight or ten suspensions becoming continuous. They could then stand more easily, and walk without assistance. After twenty or thirty suspensions Romberg's symptom disappeared. There was also relief from vesical troubles, when these existed; diminution and even disappearance of lightning pains; return of sexual desire and capacity. Anæsthetic and other sensory disturbances also disappeared, and the general condition of the patient improved, sleep being better, etc. One case had a return of lightning pains whilst being treated, but subsequently again underwent improvement, which in all the rest was uninterrupted. In no case did the knee-jerk return, or the pupil reaction become normal. The method has also been applied to a few non-tabetic cases, as Friedreich's disease, neurasthenia, and disseminated sclerosis; but, as M. Charcot observes, the method is still in the experimental stage. So far, the results in tabes are encouraging, whilst the simplicity and harmlessness of the method are additional recommendations for its further trial.—*Lancet*, January 26, 1889.

Chloride of Iron in Diphtheria.—DR. KNITSCHOFSKY advocates the administration of chloride of iron in diphtheria. He prescribes for it as follows:

℞.—Tincture of chloride of iron . 8 parts.
Glycerine . . . . . 15 "
Water . . . . . 180 " —M.

For children, one teaspoonful every two hours; for adults, from a teaspoonful to a dessertspoonful every two hours or oftener. Dr. Knitschofsky has frequently tried this remedy, and has come to the conclusion that as much as one teaspoonful can be administered every half hour without danger.—*Wiener klin. Wochenschrift*, January 17, 1889.

Treatment of Typhoid Fever in Children.—DR. H. GILLET recommends the following: To reduce the temperature wrap the little patient in blankets saturated with the following:

℞.—Vinegar . . . . . ℥viij.
Carbolic acid . . . . . 15 grs.
Oil of thyme . . . . . 5 drops.—M.

Of the antipyretics quinine is the best (four grains for a child from one to two years of age); still salicylic acid in the same doses is often of service:

℞.—Salicylic acid . . . . 4 to 6 grs.
Brandy . . . . . ℥iss.
Syrup of orange-flowers . . ℥iss.
Lettuce water (Fr. Ph.) . . ℥ij ℥ij.—M.

If sore throat supervenes, it should be treated with gargles of glycerine and borax. Stomatitis, if present, requires local applications of chlorate of potassium.

To overcome constipation injections of glycerine, or the administration of manna or of castor-oil, are of service, or the following can be tried:

℞.—Scammonium } . . . āā ¼ grain.
Calomel }
White honey . . . . ℥iv.—M.

For a child one year old divide this into three portions and administer at intervals of ten minutes.

If there is diarrhœa, wash out and render the intestinal canal aseptic with the following:

℞.—Boracic acid . . . . 3 parts.
Boiled water . . . . 100 "

Never use phenic acid, as it is dangerous. To overcome the diarrhœa proper inject:

℞.—Infusion of camomille . . ℥iss.
Starch . . . . . ℥j.
Laudanum (Sydenham)
one year old child . . ½ drop.
two to three years old . . 2 drops.—M.

Should there be any cerebral excitement present, administer musk, camphor, bromide of sodium or chloral in orange-flower or cherry-laurel water. An infusion of roasted coffee is at times serviceable and well liked by children.—*Revue Gén. de Clinique et de Thérapeutique*, January 16, 1889.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, FEBRUARY 23, 1889.

MASSAGE IN THE TREATMENT OF EYE DISEASES.

IN an address upon this subject, made at the recent Cologne meeting of the German Naturalists and Physicians, DR. PFALZ, of Düsseldorf, calls renewed attention to the matter, and chides the silence of others. While Pagenstecher's recommendation of this means of treating various affections of the anterior segment of the eyeball, and especially of clearing up corneal opacities, has doubtless been widely adopted; and the ointment of the yellow oxide of mercury, commonly used as an adjuvant, is often called by his name; it is yet a fact that not much has been written upon the subject. Many text-books make little or no mention of massage, and the matter probably lacks deserved attention.

For the clearing away of opacities in the cornea, numerous medicaments in the form of solutions, powders, or ointments, had long been employed, and among them the amorphous precipitates of mercury; but it seems to have been by Pagenstecher first that the *rubbing* was emphasized as an important element in the use of stimulating ointments; and others have proven its efficacy by omitting not only the medicament, but also the lubricant which he directed. Pagenstecher first commended its use for episcleritis and pannus; later for most slow and chronic affections of the anterior segment of the eye, except when iritis was present—involvement of the iris constituting a distinct counter-indication to its employment. This view is so far modified by Pfalz as to include chronic *plastic* iritis and its results among the conditions in which massage may be employed, after the more acute stage is past, with safety and sometimes with marked benefit. Serous iritis seems always very intolerant of such treatment, and little benefited by it, when borne. The value of the measure in lid-affections has been less noted; and while claiming for it but a limited range of application, Pfalz urges its usefulness in blepharitis, follicular conjunctivitis, and other chronic inflammations of the lids and conjunctiva, basing his views upon the anatomical disposition of the blood and lymph vessels, as well as upon clinical observation.

Theoretically, massage empties the vessels, and their refilling takes place not only from the capillaries, but also by imbibition from the tissues; while increased tone of their walls lessens the tendency to subsequent dilatation. Exudations are diffused over a wider area, and their absorption thus facilitated; while the circulation is quickened, and perhaps the trophic nerves stimulated, by the gentle irritation. Of course, only certain tissues are open to such direct action of the massage; yet it is claimed that the effect extends much further, and that notable reduction of the intra-ocular tension may be secured by this measure alone. Whether the vessels of the iris can be emptied by massage, as Pfalz claims, is probably like several of the points discussed, not beyond question; such, at least, is the explanation which he urges for the widening of the pupil which he observes as a result of the manœuvre.

Several cases are upon record where a sudden obscuring of vision has disappeared after rubbing the eyes; and the nature of the case and the subsequent history made it very probable that stasis in the retinal vessels, due to embolism or thrombosis, had been present and yielded to the massage. An unmistakable case of thrombosis of a retinal artery so relieved, has just been reported by Hirschberg.

Massage has also been utilized, after Förster's method, to triturate the lens-substance of slow-ripening cataracts, in order to hasten the maturation, and also to promote the absorption of a soft cataract after discission. Probably under the same title can be included the measure advocated by Michel—passive motion of a paralyzed or paretic muscle by grasping the tendon with fixation forceps and exercising the defective muscle by gentle stretching, alternated with stretching of its antagonist. Each of these procedures has met with more or less of success when conscientiously carried

out in suitable cases; and the negative or unfavorable results sometimes reported may often be ascribed to the operator rather than to the measures themselves.

The great drawback to the wider utilization in many cases, is the time that it takes. While a couple of minutes is all that is usually wise to expend upon any one region, this is too often more than the surgeon is willing to give. He therefore relegates the matter to some attendant, with the result that the method if properly applied at all, is not judiciously directed, as it must needs be in order to obtain the best results. These are potent and by no means harmless procedures, and their abuse may more than undo any good effects.

In its ordinary application to affections of the anterior segment of the globe, the lids should be gently closed and drawn a little tense by the fingers of the operator, and then *lightly* stroked by quick passes of the thumb, the index finger, or a cotton pledget. For the cornea, radiate stroking of one sector at a time is the best, carried, of course, from centre to periphery; circumcorneal lesions may be rubbed by a circular motion. In the case of the lids, the movement should be from internal to external canthus along the upper or the lower margin of the tarsus, and may be continued out and down upon the cheek along the course of the vessels. So employed at intervals of from one to three days, massage acts as a decided stimulant, reddening the eye for a short time, but generally soon reducing any congestion present. Any desired medicament may be rubbed in by the manipulation, the yellow oxide ointment being a favorite. (A salve so used must be free from all gritty particles, a condition most easily obtained in that of the yellow precipitate by adding an equal proportion of oleic-acid and rubbing it up with vaseline; the resulting orange-colored ointment in a few days becomes pale yellow and transparent from solution of the mercurial salt). Where the palpebral conjunctiva is the affected tissue, the everted surface of the lid may be rubbed.

As an explanation of some of the effects of massage upon corneal opacities, Pfalz points to the findings of the corneal microscope, which demonstrates in many cases tracts of vascularization, generally superficial, which are very prone to congestion upon slight cause. These he has rarely been able wholly to get rid of; but improved tone has lessened their irritability and their size has been reduced, so that they and the surrounding infiltration have ceased to be so great an obstacle to distinct vision. Old cicatrices may grow little if at all thinner; yet the smoothing of their superficial roughness may lead to a marked improvement in the visual sharpness. One case which Pfalz cites seems an extreme one, where in an interstitial keratitis with involvement of the iris, which had proved very rebellious, the vision was raised in four days from counting fingers at three feet to $\frac{4}{24}$, and in twelve sittings to $\frac{2}{3}$.

The applications of massage are thus claimed to be more extensive than generally thought; and the paper of Dr. Pfalz, while decidedly enthusiastic, seems to merit careful consideration. American ophthalmic surgeons have long made some use of massage, but certainly few can claim to have given it such a test as here described: and while the results have not generally been so brilliant, and have often been ascribed to the medicament employed rather than to the manipulation, it seems well to invite renewed attention to the subject, in the hope that more extended and careful tests will confirm the claims that are urged by its advocates.

STROPHANTHUS.

WITHIN the last few weeks, discussions of considerable interest to every one have taken place in the medical societies of the European continent, as to the relative value of strophanthus and kindred drugs. In the *Gazette Hebdomadaire* of January 18, 1889, and in *L'Union Médicale* of January 17, 1889, is a brief account of the transactions of the Académie de Médecine on January 15th, in which DUJARDIN-BEAUMETZ expressed the thought that, in his opinion, strophanthus is to be regarded as a tonic of great value in cardiac enfeeblement, possessing no deleterious renal effects, unless acute nephritis exists, when, by reason of its stimulation of the renal epithelium, it may do harm. In renal incompetence it is superior to digitalis. One of its disadvantages, he asserts, is the production of diarrhœa by its prolonged use. The assertion of Cazeaux, that it might produce nephritis, he regarded as exceedingly doubtful, except in exceedingly rare cases, and he found that it acted very happily as a diuretic when such action was desired, and with marked rapidity in the dose of five or six drops of the tincture morning and night. Altogether, Dujardin-Beaumetz regards strophanthus as a singularly valuable addition to materia medica.

At a later meeting of the Académie de Médecine, Germain-Sée read a paper on the same subject. He asserted that the action of the alkaloid was incontestably superior to that of the crude drug, in exactly the same manner as morphine and atropine are better than opium and belladonna. In mitral and aortic insufficiency it seemed to be particularly useful.

Apropos of these remarks, Sée attempts to establish a series of cardiac remedies in classes according to the state against which they are directed. These are those which are respiratory in action, or especially directed against dyspnœic symptoms, and consist of iodide of potash, atropine, pyridine, and erythrophleine, and those which are tonics to the heart, as sparteine, strophanthine, digitalis, convallaria; thirdly, those of diuretic power, namely, caffeine, and similar drugs.

Both Dujardin-Beaumetz and Constantin Paul discussed the paper at the meeting, the latter recommending an extract of strophanthus.

Again, in *Nouveaux Remèdes* of January 24, 1889, Bucquoy contributes an article on strophanthus, in which the value of the drug in aortic disease is particularly noted; the benefit in cases of angina pectoris and the non-cumulative tendencies of the drug are all insisted upon. Still more recently, in the *University Medical Magazine* for March, Hare has recorded its value in the cardiac diseases of young children where digitalis fails.

The annual report of Dr. Wm. K. Newton, Dairy Commissioner of the State of New Jersey, recently presented to the legislature, shows very favorable results from the enforcement of the law regulating traffic in milk and oleomargarine. That part of the report relating to the adulteration of foods and drugs furnishes information which will not be relished by the citizens of New Jersey. Of the 623 articles of food subjected to analysis, more than 48 per cent. were found to be adulterated; and of the 415 samples of drugs and medicines analyzed, more than 55 per cent. were adulterated, or below the legal standards.

Adulterations were detected in lard, coffee, canned goods, honey, ground spices, cream of tartar, olive oil, and numerous drugs and medicines. Some of the adulterants were of such a nature as to be injurious to health, others, and the most of them, were harmless. The selling of a debased article, though harmless, is an imposition, which in the case of medicines may place life in jeopardy. The Commissioner deserves great credit for the active warfare waged by him and his associates against these nefarious practices.

It is stated that Dr. Gamaleia, of Odessa, who claims to have discovered a method of vaccination against cholera, will go to India next month to pursue his investigations.

A hospital located within the walls at Jerusalem has unsanitary conditions of so grave a nature as almost to challenge its usefulness. It is described as having no drainage, and in a crowded situation where the streets are narrow, and into which refuse of every description is thrown, the effluvia from which is indescribable. In the courtyard of the hospital is an opening or vent from an extensive old cesspool partially underlying the building, and from it a stream of foul air is constantly pouring through the wards, which are damp, unventilated, and without the means for heating. It would be a charity to abandon such a charitable institution as this, if this is a true description.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Neurology.

Stated Meeting, February 8, 1889.

Landon Carter Gray, M.D., Chairman.

Dr. J. Arthur Booth reported

A CASE OF TUMOR OF THE CEREBELLUM.

The patient was a girl, ten years of age, who was seen in consultation February 19, 1888. The family history was good, and the child had previously had no serious illness. When three years old she fell down a flight of steps, striking her head upon the stone walk. In November, 1887, it was noticed that she was losing flesh, and she began to have attacks of headache and vomiting. She became very irritable, and indisposed to exertion, and it was noticed that she carried her head as though her neck was somewhat stiff. From the middle of January she complained of pain in the back part of the head and the neck, principally on first awakening in the morning.

On examination, February 19th, she was found to be dull, listless, and very weak. Complained of severe head pain. Speech normal; no deviation of tongue. Vision was apparently normal, and there were no changes in the fundus; but the pupils were dilated, and there was no reaction to light. There was slight paresis of the right external rectus, but no paresis of face or limbs. Knee-jerks absent; no anæsthesia. There was marked sensitiveness to touch all over the head, and especially on the

back of the neck just below the occiput. Posterior cervical glands quite large. The temperature was 101⅜° and the pulse irregular, and the diagnosis made was tubercular meningitis. Tumor of the cerebellum was considered, but the absence of optic nerve changes, and the presence of an elevated temperature, with irregular pulse, seemed to indicate the condition named.

Increasing doses of iodide of potassium were ordered, and on February 24th the patient's general condition was found to be worse, though the temperature was now 100°, and the pupils were less dilated and reacted to light. The ophthalmoscope, however, showed commencing optic neuritis.

On March 5th the first well-marked convulsion occurred, and this was followed by many others, five or six during the day. These consisted of tonic spasm of the limbs, and drawing up of the right side of the lip and nose; the right eye being tightly closed, and the left eye wide open. On two occasions only was consciousness said to be entirely lost. The symptoms were now regarded as pointing to an intra-cranial, and probably cerebellar, growth. On March 9th she was much prostrated, and it was found impossible to retain the iodide, the doses of which had been previously much diminished on account of vomiting. Stimulants were consequently given, with syrup of the iodide of iron, and inunctions of cod-liver oil. Later, there was some improvement, and the vomiting ceased. She passed her urine involuntarily, however, and the act was generally accompanied by one of the convulsive seizures described. The urine contained a trace of albumin, but was otherwise normal.

On March 25th, the ophthalmoscope showed advanced atrophy of both optic nerves, and by July 1st the patient was entirely blind. At the latter date she lay most of the time in a semi-comatose state, and had occasional attacks of *petit mal*. There was now paralysis of right side of the face, partial paraplegia, and paresis of the left arm. The following bulbar symptoms had also appeared: dulness, impaired articulation, difficult deglutition, and polyuria. There had been for some time a gradual enlargement of the head, and by August 1st there was some separation of the coronal and sagittal sutures. She failed steadily, and died August 17th.

At the autopsy, nine hours after death, the whole head was found very much enlarged; the frontal and parietal bones being very thin and separated at the sutures to a marked degree. The dura mater was very thick and distended, and, on puncturing it, a large quantity of clear fluid gushed out. The convolutions were flattened, and the whole brain was pale, flabby, and softened. The lateral ventricles were much dilated, containing a large amount of fluid, and the medulla was flattened, compressed, and softened. The optic nerves were small. Directly between the lateral lobes of the cerebellum there was found a large nodular growth, three inches long, one and a quarter inches wide, and one and a quarter inches in its vertical diameter. It was attached to the right lobe, occupying quite an extensive hollowed-out space in the lobe, and also extended into the fourth ventricle, pushed the medulla to the left, and pressed upon the right crux of the cerebellum. The microscopical examination of the tumor by Dr. Frank Ferguson, showed a large number of spindle cells, medium in size, imbedded in an abundant granular and fibrillated stroma, with a rich vascular supply. The walls, being composed of embryonic tissue, were quite thick, and gave the growth the appearance of angio-sarcoma. The tumor was cystic in places.

DR. GRAEME M. HAMMOND then read a paper on

THE PATHOLOGY OF TONIC AND CLONIC SPASMS.

The present paper, he said, was to be regarded as a preliminary one, to be followed by a second paper embracing the subject of spasm in all its details. On this occasion he proposed to consider spasm of cerebral origin, and due only to undoubted organic lesions. The only two forms of spasm which we can recognize at the present day are: 1, that in which the muscles affected are stiff, rigid, and contracted, to which the name of tonic or spastic spasm has been given; and, 2, that known as clonic or mobile spasm, in which the muscles are either the seat of regular and rhythmic contractions (tremor) or are affected with incoördinate, irregular movements, variously designated as chorea, athetosis, and ataxia.

In regard to the seat of the pathological lesion of spastic spasm all authorities are agreed that the condition is produced by an irritation situated in the white conducting nerve fibres of the motor tract; but in regard to the situations of the pathological lesions of mobile spasms the authorities are by no means so positive. Sharkey concurred in the opinion of Demarge, that mobile spasm in any form may be due to a lesion situated in any part of the motor tract, and other authors, such as Kohler and Pick, Ricci and Bidon, either coincided with this view or confessed that the subject was completely shrouded in obscurity; while Stephan located the lesion in the thalamus, and Charcot and Nothnagel in the thalamus and the posterior third of the internal capsule. It was in the hope of throwing a little more light upon the subject, Dr. Hammond said, that the present paper was written.

After some preliminary remarks on the selection of cases he took up each variety of mobile spasm separately; commencing with paralysis agitans. In this affection, as in all the other varieties of this form of spasm, except that due to disseminated sclerosis, he carefully excluded all those cases in which the lesions were so extensive as to make the cause of the spasm a matter of doubt. In 1883 Demarge reported a case in which the patient was suddenly seized with right hemiplegia, hemianæsthesia, and hemiparalysis agitans, where the autopsy showed two small foci of softening in the posterior portion of the lenticular nucleus, which, though bordering on the posterior third of the internal capsule, did not involve it in the slightest degree. In a case reported by Hamilton, in which the affection was limited to the right arm, a tumor was found limited to the substance of the left optic thalamus. In two cases reported by Parkinson and Oppolzer, respectively, there was found induration of the pons, medulla, and cervical cord. In a case reported by Dorvie there were miliary changes in the corpus striatum and hemispheres. In a case of Anton Herman's the only lesion found was a chronic meningitis. In a case reported by Galvagni in which hemiplegia of the right side was followed by ataxia when voluntary motion was attempted, and by tremor not unlike that of paralysis agitans, the only lesion discoverable was a spot of softening in the middle of the left optic thalamus. Of other cases of paralysis agitans reported, in some no lesion whatever could be found,

and in others multiple lesions were observed occupying the central ganglia, internal capsule, pons, cerebellum, and spinal cord.

In disseminated cerebral sclerosis it was very difficult to find cases, from the very multiple nature of the disease, where the symptoms of tremor on voluntary motion only could be attributed to an isolated lesion; yet a few cases of this description were on record. Having referred to cases of Demarge, Gray, and Sharkey, he mentioned one of his own, not yet reported, in which the patient began to notice that the left hand was gradually becoming weak and anæsthetic. Shortly afterward tremor was observed whenever he attempted to use the arm, and these symptoms slowly increased until, in about a year's time, the arm became useless from paresis, anæsthesia, and tremor. The patient died from pneumonia, and the autopsy revealed a spot of softness in the posterior internal part of the optic thalamus. Many cases, he said, were on record of lesions scattered throughout the white matter of the brain without involving the cortex or basal ganglia; but in all these there was either no tremor present or else the lesions involved the cell area of the pons.

In regard to the pathological anatomy of athetosis he said he had seen no reason to change the views expressed in his paper on that subject read two years ago before the New York Neurological Society, in which he reported nine cases of athetosis accompanied by autopsies. In three of these the lesions were confined to the corpus striatum, and in two to the optic thalamus. In three cases both these ganglia were involved, and in two the lesion was in the cortex, in the motor region. To these cases three more, collected by Stephan, could be added. In the first two there was softening in the optic thalamus, and in the third the lesion involved both the optic thalamus and the posterior part of the internal capsule.

Similar lesions had been observed in chorea of cerebral origin, either pre- or post-hemiplegic. Mitchell reported two cases in which the lesion was found in the corpus striatum on the opposite side, and Charcot three cases, in the first of which the lesion was situated in the posterior extremity of the optic thalamus, while in the second and third the posterior part of the caudate nucleus and the posterior part of the internal capsule were involved. Similar cases had been reported by Demarge, Reymond, Nacier, Sturgis, Stephan, and others.

The pathological anatomy of cerebral ataxia is in no wise different from that observed in athetosis and chorea. Gower reported a case in which the lesion was found in the left optic thalamus, and Demarge five cases in which the lesions were in the left lenticular nucleus, optic thalamus, and internal capsule, and in the right optic thalamus. Other cases reported by Reymond, Charcot, and others, only added to the number of cases, without indicating any other situations of lesions.

Taking these cases together, it can readily be seen that in all of them, without exception, the lesions were found constantly in three areas, viz., the cortex, the optic thalamus, and the corpus striatum. In a careful examination of all cases, it would be found that when the anterior two-thirds of the internal capsule are involved, spastic spasm is invariably present. In a case of Sharkey's, classified under the heading of disseminated sclerosis, which, beginning with tremor on one side, soon passed into a condition of spastic spasm, while a gradual onset of tremor occurred in the other side, both optic thalami were found involved, but only one internal capsule. Sharkey regarded all the symptoms as attributable to invasion of the internal capsule; but Dr. Hammond was of the opinion that only the spastic spasm, which was confined to one side, was produced by the lesion in the internal capsule, while the bilateral tremors were due to the implication of the optic thalami. While several cases had been reported of disseminated sclerosis, in which no tremor was observed, this was because the disseminated patches did not involve the basal ganglia or the cell area of the pons.

In conclusion, he said that from a study of these cases he could not agree with Demarge and Sharkey, that mobile spasm may be due to any part of the motor tract; nor with Stephan, that the lesion is in the optic thalamus; nor with Charcot, that it is in the thalamus, and, in addition, the posterior third of the internal capsule; but he believed that it may be produced by any lesion of an irritative nature situated in any part of the brain where nerve cells are located—these cells being located in the cortex, optic thalamus, corpus striatum, and pons; the difference in the form of the spasm, he thought, was one of degree, and not one depending on the location of the lesion; and it was, therefore, impossible from the symptoms to differentiate between a lesion of the cortex, optic thalamus, and corpus striatum.

DR. LANDON CARTER GRAY presented

A REMARKABLE CASE OF PROGRESSIVE MUSCULAR ATROPHY

in a male patient, thirty years of age. It is an instance of the so-called "juvenile type" of progressive muscular atrophy, as described by Erb, of Heidelberg, in 1884. It is, he said, the purest case—indeed, the only pure case—that he has ever seen; the limitation of the atrophy and hypertrophy being exactly as described by Erb. He believes that this is the first case that has been met with in this country, although a case of Dr. Putzell's, published in the *Reference Hand-book of the Medical Sciences*, was very closely akin to this type. It differed from it, however, in the distribution of the atrophy, in the presence of marked sensory symptoms, and in the onset of the disease with slight cerebral symptoms.

Dr. Gray stated that he has but little faith in this type-making business, because of the failures of the predecessors of Erb in this line, such as Hemptenmacher, Eichhorst, Zimmerlin, Leyden, and Moebius. He then went on to speak at some length of his reasons for believing that this type often merged into others.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, February 5, 1889.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

DR. CHRISTIAN A. HERTER read a paper entitled

A STUDY OF EXPERIMENTAL MYELITIS.

The object of the paper was twofold; first, to show that it is possible to give rise to an acute localized myelitis in animals (cats, rabbits, dogs) by temporarily shutting off the blood supply of the spinal cord; secondly, to describe in detail the histological characters of the pro-

cess thus induced. Stenson's operation, as modified by DuBois-Reymond, was used to deprive the cord of its blood-supply. This consists in passing a curved needle through the abdominal wall on one side of the vertebral column, and bringing it out on the other, in such a manner as to include, among other structures, the aorta and vena cava. The needle carries a strong ligature, which is tied so tightly over the back of the animal as to compress effectually the abdominal vessels. The spine of the fourth lumbar vertebra is the level at which the needle is passed. The effect is to produce an almost instantaneous paraplegia. If compression be exercised for a shorter time than three-quarters of an hour, the paralysis wears off rapidly; if for more than an hour, it becomes permanent and does not diminish during the life of the animal.

In these cases lesions of the cord, peripheral nerves, and muscles could regularly be detected shortly after the operation. Pathological changes were visible in the anterior horns of the fifth and sixth segments as early as twenty-four hours after the operation. In a few ganglia cells the cell-body was pale and swollen, and the nuclei were obscured. Twelve hours later, a larger number of cells was involved, and many had lost their processes, and, in some instances, their nuclei. After a lapse of seventy-five hours, the necrotic changes in the ganglion cells were much more intense, and involved, at least to some extent, about one-half of the cells in each section. In consequence of these changes in the ganglion cells, the anterior nerve roots had undergone partial degeneration. Sections stained by Weigert's method showed that the fine network of medullated fibres of the gray substance was also distinctly altered in places. Many of the vessels and perivascular spaces showed evidence of inflammatory change. By the end of the sixth day, the inflammatory process was much more advanced. Twelve days after the operation, no normal ganglion cells could be found in the fifth and sixth lumbar segments. After thirty days, the nervous elements of the central gray were all but completely destroyed. In a majority of sections from the most diseased region, no ganglion cells could be detected. Nothing remained of the network of medullated fibres. The anterior horns were completely degenerated. The posterior nerve-roots were infiltrated with small round-cells, as was also the intervertebral ganglion. The spinal nerves derived from the diseased portions of the cord underwent degeneration closely resembling that occurring in distal parts of divided nerves. Interesting changes were found in the muscles. Hemorrhages into the perimysium were visible in the first week. By the sixth day, a curious condition of vacuolization was found in individual fibres which, by the thirtieth day, could only be detected here and there. At this time, the majority of the fibres had undergone simple atrophy, and coincident with this change there was hyperplasia of the interstitial connective tissue. Many of the larger fibres had undergone granular degeneration. In long-standing cases, the bladder was the seat of great muscular hypertrophy and connective tissue hyperplasia. In non-pregnant females, the mucous membrane of the uterus was regularly the seat of hemorrhagic infarctions. In Stenson's experiment, we have a method of inducing a form of myelitis in animals which, in certain stages, bears a close resemblance to processes which occur in man. This fact suggests that interference with the blood-supply of the human spinal cord may be an etiological factor in some varieties of myelitis. A few cases have been recorded which justify the suspicion that embolism of the spinal cord can give rise to an acute myelitis, and it is not improbable that other causes of vascular obstruction may produce the same effect.

DR. HEITZMANN felt that he could discuss the subject of myelitis intelligently, after having studied it twenty-five years. Experimental myelitis had been the object of much careful work in his own laboratory by Emerson, Rockwell, and Boyer. The results of their work had been published in this country, and he wondered why Dr. Herter had ignored them. He could understand the writer's taking the ground of his teacher that there is an emigration of leucocytes, and not a proliferation of neuroglia cells. Why was Cohnheim ignored? In the drawings accompanying the paper he had noticed œdema very distinctly, but Dr. Herter had not mentioned its presence. This œdema was, no doubt, the cause of the change in shape of the central canal. In his opinion, the gray matter itself furnishes most of the corpuscles which Dr. Herter called leucocytes. This he had learned from his own laboratory work, and Robinson had shown twenty-five years ago, by producing inflammation in the sympathetic ganglia, that the ganglion cells plainly break up into these corpuscles. They are not replaced by leucocytes, but through nutritional changes fall back into embryonal conditions. What right have we to speak of connective tissue in the gray substance? It is protoplasm full of activity. To show these changes osmic acid, bichromate of potash, and chromic acid should be used, and not alcohol, which he supposed the author had employed. There is not a single proof that leucocytes, even if present, ever form connective tissue. As to the myositis, he supposed the author would refer that too to emigration of leucocytes into the perimysium.

DR. SACHS thought that the point of greatest importance established by the author was that the cells of the anterior horns are the first to be changed. The theory of Strümpell and others as to the infectious nature of some spinal cord diseases, might often be explained, perhaps, by vascular changes. Possibly bacterial occlusion of spinal vessels might cause acute poliomyelitis. The muscular changes described by the writer were different in man. In animals vacuolization was early, but in man after long-continued chronic disease of the muscles.

DR. MARY PUTNAM JACOBI was particularly struck by the apparent identity of symptoms produced by cutting off the blood supply, and by furnishing blood in excess. Some of the older experimenters had occluded arteries by the injection of powders. The author's contribution confirmed Ranvier, that the first step in inflammation was change in nutrition. The question had occurred to her, whether all these vascular alterations were not the immediate result of loss of directive power over the bloodvessels by the cells which govern.

DR. JACOBY had examined Dr. Herter's specimens microscopically, and there was no doubt as to the changes in the posterior roots. He did not think the alterations in the muscles were properly vacuolization, not such as in Wagner's specimens, which he had also seen. It was a question if all the changes were due to the cord lesion.

DR. HERTER closed the discussion. As to Dr. Heitzmann's criticisms, to answer him would involve a reconsideration of the whole question of inflammation, as his

views upon that subject seemed to be so sweeping and revolutionary that they would require more examination and thought than he was able at the time to give them. His specimens were many of them examined in the fresh state, and some after hardening in Müller's fluid. They were not treated with alcohol. As to there being no connective tissue in the spinal cord, this was at variance to the generally accepted ideas, and it was difficult for him to conceive of its absence. He knew of the experiments referred to by Dr. Mary Putnam Jacobi, but thought they were confined more to the study of grosser effects and lesions, and not to the study of microscopical changes.

DR. SACHS then presented a case of

HEMIPLEGIA WITH REMARKABLY PERFECT ASSOCIATED MOVEMENTS

on the paralyzed side. It was a young man of twenty-three, who had infantile hemiplegia at the age of one year, as the probable result of a fall. The paresis, contractures, and exaggerated reflexes of the left side, were the remnants of this early attack. He also described a second case, who failed to put in an appearance at the meeting, a girl of twelve, whose early history was very obscure, but whose physical symptoms pointed to a similar attack in early life. Both cases presented the marked peculiarity that all the movements of the sound arm and hand were imitated by the paretic members, and *vice versa*. The same was true to a less degree of the lower extremities. In Case I. if he attempted to raise his left arm the right would also be raised; in lifting a glass from the table with his left hand, the right would perform the same movements. They were very marked in buttoning or unbuttoning his clothes, when the paretic hand would make the same motions, In Case II. these delicate movements were also present, but the grosser kinds were not imitated by the paretic hand.

Some charts, designed by Dr. Peterson, were exhibited to show the resemblance between the original and the associated movements. They were copies of zigzag lines made by the patient on a horizontal blackboard with a piece of chalk in each hand. Dr. Sachs remarked that it was difficult to explain these associated movements, and that it was curious that the very members of our bodies, which are innervated from our earliest days, should perform associated movements in disease. It was supposed by some that inhibition having been removed by cortical or intra-cerebral disease, the natural tendency to bilateral movements returned, and that the paretic hand was moved from the sound half of the brain. There were numerous objections to this theory, and it could not explain the associated movements of the sound hand when attempts were made to move the paretic hand. The speaker thought it more probable that an irradiation takes place lower down in the central nervous system, either in the pons, medulla, or even in the spinal cord, and that these associated movements are to be regarded as imperfected reflected movements. He did not think that such movements could be explained by the supposed existence in many persons of an unusually large number of uncrossed motor nerve fibres.

DR. HERTER asked if there were athetosis and atrophy in the cases, and was answered that there was as much atrophy as usual in cerebral cases, but no athetosis.

DR. LESZYNKSY had noticed in such cases that when the attention of patients was directed to the paretic hand these associated movements occurred, but not otherwise.

CORRESPONDENCE.

ON THE CLINICAL APPLICATIONS OF BARIUM.

To the Editor of THE MEDICAL NEWS,

SIR: In your last issue, Dr. Hobart A. Hare appears with an interesting paper on the clinical applications of barium. He quotes the opinions and observations of foreign physicians only, thereby implying that on this side of the Atlantic the remedy is ignored or is unknown. If he will kindly refer to pages 229–231 of a *Treatise on Materia Medica and Therapeutics*, by Roberts Bartholow, M.D., sixth edition, he will find a tolerably full account of the actions and uses of barium. Dr. Hare cannot be expected to look over old editions of this book, and, therefore, I take the liberty to acquaint him with the fact that an article on barium was inserted in the fourth edition of this work, published in 1881. The following sentence gives a summary of the views held by the author of the work above referred to, on the subject of the uses of barium:

"Barium chloride has proved useful in hemorrhage, acute congestion of organs, atony of the bladder, atony of the intestines with deficient secretions, and in weakness of the heart with low arterial tension, and for effecting the removal of inflammatory exudations," etc.

To this statement I can add some recent personal experience: Barium chloride has proved to be remarkably successful in *the treatment of varicose veins*. Within the past few years various cases of *aneurism* have been reported in current medical literature cured by it.

As during the whole time of my residence here I have included an account of barium in my regular annual course of lectures, both didactic and clinical, the students of Jefferson Medical College can testify as to the accuracy of the above, if further testimony be necessary.

ROBERTS BARTHOLOW, M.D.

PHILADELPHIA, Feb. 18, 1889.

OPERATIVE PROCEDURES IN HYPERTROPHY OF THE PROSTATE.

To the Editor of THE MEDICAL NEWS,

SIR: *Apropos* of an article in THE MEDICAL NEWS of Jan. 19th, under the title "Operative Procedures in Hypertrophy of the Prostate," I make the following report:

J. G., a large fleshy man, aged seventy-nine, an engineer by profession, applied to me December 15th for relief from retention of urine. He had been subject to attacks of dysuria for many years, and in the summer of 1887 had fallen astride of the gunwale of a boat and bruised his perineum to such an extent as to produce a traumatic stricture, which closed the urethra to the introduction of the smallest instrument. The urine, however, had continued to dribble through with increasing difficulty, until the date of his application to me, when the retention had become almost complete.

On examination the prostate was found to be as large as a good size orange, filling the rectum to the obstruction of gas, as well as feces, the distended bladder, of course, assisting. The perineum was very deep, and

showed the results of the injury it had received, by an induration which extended from the bulb to the apex of the prostate. He could retain nothing on his stomach, and seemed to be suffering as much from obstruction of the bowels as from the retention of urine. What little urine he passed was slightly alkaline, but otherwise normal in every respect; in fact, there was no evidence that the kidneys had been affected by the obstruction to the flow of urine, which, from his account, must have existed to a greater or less extent for at least fifteen years.

The question was, What to do with him? Perineal section without a guide in the disorganized condition of the parts would prove to be a formidable undertaking. To "tap the bladder through the perineum and the enlarged prostate quite independent of the course of the urethra," considering the size of the prostate, I was not inclined. Aspiration would afford only temporary relief.

It seemed to be one of the few cases in which it is justifiable to open the bladder above the pubis. Accordingly in the presence and with the concurrence of Doctors George A. Sterling and W. H. Perdomo, a free opening was made with a bistoury through a thick layer of fat, almost down to the bladder, into which an ordinary trocar was then thrust, and the water drawn slowly off. A soft catheter was then introduced through the canula and retained. In addition to the relief of the bladder symptoms the patient was immediately able to pass a quantity of flatus which had distressed him greatly. Two days after, in a moment of irritation, he removed the catheter, which I was not able to introduce, the bladder being collapsed. The urine, however, passed freely through the opening without extravasation, a fact due to the size of the external wound, as I think, and continued to do so for a week, All this time he would have been very comfortable, but for the obstruction of the bowels. He could pass flatus but no feces, and retained nothing that he took into his stomach.

At this time the opening closed and the symptoms of retention reappeared, but were not so marked as before the operation. Three days later it reopened and the urine continued to flow through it until the patient's death, which took place on January 5th, eighteen days from the date of the operation.

On January 4th, the urine ceased to be secreted and he fell into a quiet stupor, breathing easily, without stertor. Soon afterward his breath took on a decidedly urinous odor, and there appeared on his nose, cheeks and side-whiskers, a copious white deposit, which I took to be urate of soda, though I had no means at hand to determine the fact. There was some about the mouth, or the under part of the nose, possibly because of the warmth and moisture of the breath. It continued for several hours and then ceased to form. On being wiped off, it did not reappear.

At the autopsy, the bladder with the exception of a slight thickening of the walls, was found to be in a sufficiently healthy condition, but the third lobe of the prostate projected into it at least an inch and a half. This was sessile, but soft and pendulous, and had a tendency to fall over toward the neck of the bladder in such a way as to block it up completely. The enlargement in this as well as in the other portions of the enormously developed glands, was simply hyperplasia with no heterogeneous elements in it.

There were no signs of extravasation of urine, or peritonitis. The suprapubic opening had evidently taken on the characteristics of a fistula with a living membrane of its own. The kidneys were not examined; partly from deference to the almost universal objection on the part of country people to the mutilation of the dead for scientific purposes, and partly from the fact that no symptoms referable to these organs had shown themselves until the last moment.

Now this man evidently did not die from the effects of operation. There was no shock. No rise of temperature. No extravasation or peritonitis. No signs of septic influence, unless the uræmia of the last twenty-four hours be classed under that head, and I do not think that the operation was to blame for that. He died of starvation, and the suprapubic opening in relieving him of the retention did all that any elaborate operation could have done, (I shudder at the thought that somebody might suggest colotomy). At the time of his death his bowels had not acted for nearly a month, and for three weeks he had taken nothing more nourishing than a little champagne and seltzer water. An injection thrown past the prostate was held by it as by a valve, and gave him so much distress that it was not repeated During this time he must have lost at least seventy pounds. He lived upon himself, a diet so largely nitrogenous as possibly to account for the accumulation of urates which took place toward the last.

The white deposit mentioned, I have never seen before, nor do I remember to have seen such a case reported.

J. H. ROGERS, M.D.

SAG HARBOR, LONG ISLAND, Feb. 11, 1889.

NEWS ITEMS.

Pharmaceutical Explosions.—According to the *Farmatzevtitchesky Jiirnal*, December 4, 1888, a sad accident recently occurred in the shop of a St. Petersburg chemist. A powdered mixture, consisting of an ounce of chlorate of potassium and one drachm of tannic acid, was ordered by a physician who probably had forgotten his chemistry. The chemist, who also ought to have known better, set to work to dispense the prescription, and was punished for his ignorance by a violent explosion of the incompatible substances. His hands were severely burned, and his beard and eyebrows were singed off. He was only able to resume his occupation several weeks afterward. A similar accident occurred about two months before at Warsaw, where a chemist tried to prepare a mixture consisting of chlorate of potassium, tannic acid, and oil of peppermint.—*Brit. Med. Journ.*, Feb. 2, 1889.

Corrigendum.

DECUSSATION OF FIBRES OF VOLUNTARY MOVEMENT.

In our issue of February 9th, page 160, the first and second conclusions on this subject reached by Dr. Brown-Séquard were stated as the reverse of what they should have been.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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ORIGINAL LECTURES.

ACUTE PANCREATITIS.

A Consideration of Pancreatic Hemorrhage, Hemorrhagic, Suppurative, and Gangrenous Pancreatitis, and of Disseminated Fat-necrosis.

The Middleton-Goldsmith Lecture for 1889, delivered before the New York Pathological Society, Feb. 16, 1889.

BY REGINALD H. FITZ, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY IN HARVARD UNIVERSITY AND PHYSICIAN TO THE MASSACHUSETTS GENERAL HOSPITAL.

(Continued from page 203.)

HEMORRHAGIC PANCREATITIS.

IN considering the relation of hemorrhage to acute pancreatitis, it is important to agree upon what shall be understood by the latter term.

It has already been shown that the views advanced by Clässen and his predecessors give no aid in this matter. Klebs is non-committal on account of the paucity of evidence, and Friedreich elaborated his systematic description of acute primary pancreatitis from the consideration of four cases. In the one pancreas were multiple abscesses; in another a bloody exudation, and infiltrated blood in the vicinity; in a third were spots of finely granular, yellow exudation, with interlobular hemorrhage; while the fourth pancreas was gangrenous.

The material which had been accumulating since the publication of Friedreich's article, in 1875, is already so considerable and varied as to make possible a more complete description of the subject.

The acute inflammation of a gland, from the anatomical point of view, demands the presence of degenerative changes in the parenchymatous cells, or an exudation in the interstitial tissue, or both these factors.

The first, the parenchymatous inflammation, or granular degeneration of the pancreas, such as occurs in infective diseases, or as the result of mineral poisoning, is of no immediate concern. It is the interstitial variety which, with or without associated parenchymatous changes, may be regarded as the genuine acute pancreatitis; and it is in the interstitial tissue of the pancreas that the inflammatory exudation is to be sought. But this tissue is both fibrous and fatty, one or the other variety predominating in different individuals, and, perhaps, at different periods in life. These tissues bear a continuous relation to the peritoneum and to the subperitoneal and retropancreatic fat-tissue. It is, therefore, most probable that an inflammatory process of this fat-tissue might arise within the pancreas, or be continued to the pancreas from some more remote place of origin. Thus a primary and a secondary acute, interstitial pancreatitis might occur. The results in either case would be the same; the sources and progress of the disease might vary.

Whenever the anatomical evidence is insufficient to establish the diagnosis of inflammation, it is permissible to utilize the symptoms for this purpose. If the general symptoms of inflammation are present, and the pancreas is described as infiltrated with blood, such an association of symptoms and lesion is rather classified among the inflammations than among the hemorrhages.

Thus, Cases VIII. and XX. have many features in common; the latter, however, is tabulated as hemorrhagic pancreatitis, since it was considered clinically as a case of peritonitis from perforation. The former was placed among the hemorrhages, since the clinical picture was not that of an inflammatory process.

The series of cases which form the basis of this part of the subject naturally fall into three groups.

In the first hemorrhage is conspicuous, in the second suppuration, and in the third gangrene.

These may be designated respectively as hemorrhagic, suppurative, and gangrenous pancreatitis.

Before calling attention to the first of these groups it is desirable to exclude certain cases which have been regarded as possible illustrations of a hemorrhagic pancreatitis. Fearnside[1] reported the case of a man æt. forty-nine, not remarkably temperate, but who had enjoyed good health till within a year, since which time deep-seated pains in the region of the stomach had existed, with occasional heat or coldness in the same region, gastrorrhœa, pyrosis, constipation, pallor, and loss of flesh. For three months before death the pains became more severe and frequent, eventually constant, generally most distressing a few hours after taking food. Three days before death a sudden, excruciating pain occurred, followed by jaundice and a dark-brown vomit. On the following day there were intermitting vomiting and frequent hiccough. On the day of his death he was collapsed, although his intelligence was good. The epigastric pain was severe, and, on pressure between the navel and the ensiform cartilage, a deep-seated, transverse tumor could be felt. The pancreas was four times the normal size, and was adherent to the stomach by some firm adhesions. The neighboring peritoneum showed spots of soft and firm exudation. The greatest increase in size was in the head, which extended deeply into the right lumbar region. It was blackish-brown, pultaceous, grumous, and contained distinct blood-clots. In the more consistent portions there was no trace of natural gland-tissue. The body was firm and close in texture, of a dark red color, mottled with black lines and points, and became paler toward the lip.

The probability of this being a case of malignant disease with hemorrhage is very strong, especially as the appearances do not correspond with those to be stated later as found in hemorrhagic pancreatitis.

Rigal[2] reports the case of a man, æt. fifty-two, previously in perfect health, who suffered for seven days from

[1] London Medical Gazette, 1850, xlvi. 967.

[2] Gaz. des Hôp., 1869, xlii. 562.

intermittent fever, daily, with short remissions. The abdomen and legs then became swollen, and some pain was complained of at the right of the navel, where was a sensitive, indurated spot. Jaundice then occurred, also progressive weakness and epistaxis. Finally, fever was noticed, and death took place about seven weeks from the beginning of his sickness. The pancreas was large, the head being twice the normal size. The latter was brown, both on inspection and section. On microscopic examination there was advanced fatty degeneration, and numerous crystals of margarine were seen. There was also fatty degeneration of the right kidney and an enlarged and friable spleen. The liver was normal in size and consistency; the bile-ducts and gall-bladder were dilated.

This case is excluded from the list which is to follow, from the inability to determine the nature of the changes in the head of the pancreas. At the same time it is admitted that certain characteristics are presented which render it not unlikely to have been an instance of the disease under consideration.

The case reported by Huber[1] must be excluded from those of hemorrhagic pancreatitis. His patient died within twenty-four hours after the onset of an attack of severe, epigastric pain. There was a tumor of the head of the pancreas surrounding the common duct, which was passable. The tumor descended into the mesentery. It looked like Förster's carcinoma simplex, but had many pigmented and hemorrhagic spots.

The case of pancreatic hemorrhage reported by Challaud and Rabow[2] is also not wholly clear with reference to its relation to pancreatitis.

The patient, sixty-two years of age, an insane woman and inmate of an asylum, had an ovarian cystoma for several years.

She was found at bedtime, pale, and groaning feebly, without known cause. The next day she was collapsed. She complained of suffering, especially in the lumbar and epigastric regions. The pain was not increased on pressure, and there was repeated vomiting. She remained in a condition of extreme weakness, with frequent vomiting and groaning, a quick pulse, and a subnormal temperature till her death on the fourteenth day. The pancreas appeared doubled in size. On tearing its tissue, a certain quantity of thick, black blood escaped. In making a longitudinal section, a cavity as large as the fist was opened, filled with large, black clots. The pancreatic tissue was dark brown, and so softened and friable that it was impossible to determine the point of origin of the hemorrhage. The duct was moderately dilated, and the tissues in the immediate vicinity of the gland were strongly discolored with blood.

This case is not included among those of hemorrhagic pancreatitis, since the described appearances do not correspond with those usually found and the possibility of a pancreatic cyst or of an aneurism is not eliminated.

The following list of seventeen cases includes the instances of associated pancreatic hemorrhage and inflammation which present common features of symptoms and anatomical changes. Of these cases, three occurred within the vicinity of Boston; two of these are now, for the first time, reported, and the gross and microscopic specimens from the latter are submitted to your inspection.

[1] Deutsches Arch. f. klin. Med., 1875, xv. 455

[2] Bull. Soc. Med. de la Suisse Romande, 1877, xi. 345.

Case XVII.—Male, aged twenty-six. Strong. Drinks and smokes. Five years ago, from excesses, attacks of belching, nausea, cardialgia, colic, diarrhœa, burning sensation in upper abdomen. For sixteen days colicky attacks in upper abdomen, becoming more frequent. In past five days paroxysms have become more intense; nausea, vomiting, constipation, fever, anxiety, now collapsed. Burning, stabbing, griping pain from duodenum to spleen, toward navel, back and right shoulder, most severe along curvature of stomach. No stool for several days. Upper abdomen hot, swollen, sensitive. Death in eight hours. Pancreas doubled in size, firm, violet. Lobules much enlarged, dark, injected, interstitial tissue infiltrated with blood. Here and there in the blood, between the lobules, a finely granular, yellow exudation. Connective tissue around the pancreas swollen, friable, bluish-purple, infiltrated with blood.—Löschner. Weitenweber's *Beitr. z. Med.*, 1842; Schmidt's *Jahrb.*, 1843, xxxix. 31.

Case XVIII.—Male, young adult. Strong. Sudden cardialgia, without known cause, becoming violent on strong epigastric pressure. Constant bilious vomiting, obstinate constipation. High fever, quick pulse, collapse. Death in three days or more. No evidence of poisoning; diagnosis, perforating gastric ulcer. Pancreas at least doubled in size, dark-red. Hemorrhage between the lobules, and much extravasated blood in the vicinity of the pancreas, between the mesenteric folds.—Oppolzer. *Allg. Wien. med. Zeit.*, 1858, xlv.; *Mediz Neuigk.*, 1859, ix. 105; *Wien. med. Woch.*, 1867, vii. 7.

Case XIX.—Male, aged forty-four. Active, fat, florid, temperate. Sudden severe pain below left breast, nausea, constipation, tympanites, weak pulse. Second day, black vomit, dejection (alvine) exhaustion. Death in collapse on the third day. Pancreas enlarged, hard, friable, contained several small, scattered extravasations of blood. The seat of several lobules occupied by large lobules of fatty matter, from which much margarine crystallized out. Very many small granular cells in the interval between follicles.—Hooper. Beale's *Arch. of Med.*, 1860, ii. 282.

Case XX.—Male, aged thirty. Strongly built, fat, looked fond of spirits. In past few years frequent palpitation and occasional dyspnœa. Sudden abdominal fulness and tension attributed to new beer. Anxious, restless, uncomfortable. Feeble pulse, rapid breathing, cold sweat, subnormal temperature. Then abdominal pain, distended, tympanitic, upper abdomen. Nausea. Second day: collapse, spontaneous dejection, no fever. Sudden, violent delirium. Diagnosis: peritonitis from perforation. Death in thirty-six hours. Pancreas doubled in size, firm, dark violet. Extensive interlobular, hemorrhagic infiltration. In the head many nodular hemorrhages as large as cherry-stones, marked bloody infiltration of the peripancreatic tissue.—Hilty. *Corresp. Bl. f. Schweiz. Aerzte*, 1877, vii. 666.

Case XXI.—Male. Intemperate. In delirium tremens for a few days, then death. Pancreas trebled in size from presence of fat tissue within and around the gland. Minute hemorrhages in places. Microscopic examination showed hemorrhage between the cells, and a small-celled infiltration in the interstitial tissue. A peripancreatitis with gradual extension into the parenchyma.—Guillery. *Ueber d. Entz. d. Pankreas*, Inaug. Diss., 1879, 26.

Case XXII.—Male, aged forty-two. Fat, temperate. Has had repeated attacks of severe abdominal pain, with bilious vomit. Watery vomit every morning for some time, and before present attacks. Severe abdominal pain, worse in left side on palpation. No vomiting. Subnormal temperature. Abdomen tympanitic, distended, especially below navel. Second day: pain less, pulse weak. Death. In head of pancreas a cavity with butter-like contents. A hemorrhagic mass in the tail, apparently the starting-point of a peritonitis along the pancreas. Omentum thickly strewn with small, dirty

white, rounded, flattened patches, composed of cheesy, degenerated fat.—Farge. *Bull. Soc. de Méd.*, 1880–82, N. S. viii. 188.

Case XXIII.—Male, adult. Robust. Occasionally easily relieved, painful indigestion. A year ago jaundice lasting two and a half months, accompanied with some epigastric pain. Epigastric pain: unable to continue occupation. Second day: symptoms of peritonitis with great prostration. Death on the following day. Pancreas dirty red, containing brownish-black nodules, mottled with opaque-white spots. The microscope showed diffuse blood, and amorphous clumps of the same. The white spots due to short, staff, or spindle-shaped crystals in the fat tissue. Outline of gland cells lost, nuclei indistinct. Peritoneum reddened.—Whitney. *Boston Med. and Surg. Journ.*, 1881, cv. 592.

Case XXIV.—Male, aged fifty-four. Enormous quantity of subcutaneous fat. Sick for two or three days before death with slight gastric difficulties, soon followed by vomiting, symptoms of peritonitis, and collapse. Diagnosis: internal strangulation. Pancreas enlarged, soft, pale, dirty yellow, speckled with numerous opaque-white streaks and spots, also dark brown and reddish-black spots. Numerous ducts filled with blood-clots. Head of pancreas infiltrated with blood, and surrounded with clotted blood. Numerous hemorrhagic patches in the mesentery. Also opaque, bright yellow patches the size of a cherry-stone in the subperitoneal fat of the abdominal walls and in that of the omentum and mesentery.—Balser. Virchow's *Arch.*, 1882, xv. 525.

Case XXV.—Female, aged thirty-three. During first pregnancy much gastric disturbance and headache. In the last three months violent attacks of abdominal pain, suggesting impending perforation. Slow recovery. Two attacks during the five weeks after delivery. Sudden violent pain near pylorus thirty-seven days after delivery. Occasional vomiting, some collapse, no fever. Sensitive epigastrium, abdomen moderately distended. The violent epigastric pain persisted; meteorism took place. Collapse and death in five days. Pancreas enlarged, almost wholly transformed into a brownish-red, bloody mass. The microscope showed a small-celled infiltration and hemorrhage which may have continued for some days. Duct somewhat dilated. Adjacent omentum slightly suffused with blood.—Haidlen. *Cbl. f. Gyn.*, 1884, viii. 609.

Case XXVI.—The patient died of ileus. There was a hemorrhagic pancreatitis and peripancreatitis. The pancreas was as large round as a man's arm, and was so wedged between the spleen and the duodenum as completely to obstruct the latter.—Eichhorst. Eulenberg's *Real Encyclopædia*, 1885, ii. 434.

Case XXVII.—Male, adult. In perfect health. Sudden nausea, vomiting, and slight diarrhœa. Some hours later severe gastric and abdominal pains and cramps. Second day: pains more frequent, intense thirst, collapse, slight albuminuria. Third day: no dejection; subnormal temperature. Unexpected death on the fourth day. Pancreas enlarged, hard. Between it and the duodenum, encroaching on the former, but adherent to both, was a flattened mass of blood an inch and a half in diameter.—Amidon. *Boston Med. and Surg. Journ.*, 1886, cxv. 594.

Case XXVIII.—Male, aged forty. For a year or more general malaise and lack of strength, attributed to indigestion. Epigastric pain, vomiting, weak heart. Death on the sixth day, preceded by cessation of pain and vomiting. Pancreas very large, on section dark-red streaks and patches between the lobules. The fat tissue of the abdomen, especially near the pancreas, studded with opaque-white spots of fat necrosis, with a well-defined blackish edge. Colonies of micrococci found near these spots.—Pinkham and Whitney. MSS. Notes, 1886.

Case XXIX.—Male, aged fifty-eight. Intense epigastric pain for several days. Sensitive epigastrium, haggard, emaciated. Cancer of stomach suspected. Found asleep after breakfast with Cheyne-Stokes breathing, almost imperceptible pulse. Death in less than three hours after discovery in the above condition. Universal, interstitial, pancreatic hemorrhage, with clots in the tail. In the body of the gland the acini appeared as grayish-white areas surrounded by the dark red hemorrhagic exudation. Increased round-cells in the semilunar ganglia, whose ganglion-cells were cloudy and indistinct. Œdematous Pacinian corpuscles behind duodenum and pancreas.—Osler and Hughes. *Trans. of Phila. Path. Soc.*, 1888, xiii. 24.

Case XXX.—Female, aged fifty-six. Very fat. Attacked with vomiting, abdominal pain; complete obstruction. A swollen intestinal convolution to be felt in the right side. On the fourth day, sudden collapse, mind clear, abdomen distended, very painful, no palpable tumor. Laparotomy. Death five hours later. Pancreas greatly enlarged, black from hemorrhage, fatty degenerated. General peritonitis with adhesions and hemorrhagic exudation. Yellowish-white spots, up to the size of lentils, were seen beneath the parietal and visceral peritoneum, both at the operation and after death. They were composed of crystalline fatty acids, —Hirschberg. *Berliner klinische Wochenschrift*, 1887, xxxiv. 287.

Case XXXI.—Male, aged thirty-eight. Sudden, violent, colicky pains above the navel. Soon, high fever, delirium, copious green vomit, and death on the second day. Pancreas markedly enlarged, dirty, brownish-red color. On section, dirty, grayish-red plugs were squeezed from the lobes and lobules. The microscope showed the interstitial tissue infiltrated with round-cells and red blood-corpuscles. The epithelium enlarged, granular; in many acini transformed into a finely granular detritus; a bloody, ichorous fluid in the pancreatic duct. Considerable swelling, hyperæmia, and ecchymosis of the duodenum and jejunum.—Birch and Hirschfeld. *Lehrb. d. Path. Anatomie*, 3te Aufl., 1887, ii. 639.

Case XXXII.—Male, aged forty-two.—Birch and Hirschfeld. Op. cit.

Case XXXIII.—Male, aged forty-eight. Abundant fat-tissue. Hemiplegic for several years. Has had several attacks of gastric pain, not lasting more than a day. Awoke with severe gastralgia, vomiting, later collapsed. Second day: restless, but comfortable with morphia. Hiccough, vomited some dark red lumps. Third day: rapid breathing, cyanotic, collapse. Death. Pancreas doubled in size. On section, dark red, mottled with opaque-white spots. Fat tissue near pancreas and in root of mesentery discolored red. Mesenteric fat-tissue showed numerous opaque-white spots. The fat-tissue in places discolored, soft, and foul-smelling. Thrombosis of splenic, pancreatic, and mesenteric veins. No infiltration about semilunar ganglion.—Putnam and Whitney. MSS. Notes, 1888.

I am indebted to Drs. Pinkham and Whitney for their notes of Case XXVIII. The patient was a man, forty years of age, by occupation a caterer. He was liable to attacks of acute indigestion, and for a year or more before his death had suffered from general malaise and debility. His discomfort was attributed to indigestion. His last illness was of six days' duration and was characterized by epigastric pain, vomiting, and by great cardiac weakness. Death occurred from heart-failure after the pain and vomiting had ceased.

There was a large quantity of abdominal fat and the post-mortem examination was negative, with the exception of the appearances described below. The pancreas

was very large, weighing, with some adherent fat, four hundred and ten grammes. The cut surface showed everywhere dark red streaks and patches between the lobules and separating them to a slight degree. On microscopic examination there was no evident alteration of the gland-cells. A considerable quantity of free blood-corpuscles was found in the intralobular tissue. The fat tissue was everywhere filled with small, opaque-white spots, often with a well-defined, dark border. Their diameter varied from a few millimetres to several centimetres. They were present within the pancreatic fat-tissue and in that outside the organ. Microscopic examination showed that the fat-tissue was changed to a finely granular mass in which were numerous, very fine, acicular cystals. In the vicinity of the patches of necrotic fat-tissue were found colonies of micrococci.

For the purposes of this paper a more extended microscopical examination has been made of the above pancreas.[1]

There is an extensive inter- and intra-lobular infiltration of fat-tissue. The interlobular fibrous tissue is increased in places and the contained duct is widely dilated.

The pancreatic lobules are, at times, diffusely stained of a brownish-yellow color. Certain lobules contain clusters of orange-colored, acicular crystals, especially in the vicinity of the fat-tissue.

The interlobular fat-tissue shows circumscribed, as well as diffused, hemorrhagic infiltration. There is, in addition, an excessive accumulation of round cells, in places wholly cellular, again fibrino-cellular, entirely replacing the fat-tissue. There are sharply defined islets of fat-tissue in which the individual cells are indistinct, without nuclear staining, the whole filled with acicular fat-crystals. The border is often sharply defined by a zone, in which are small, round clumps of orange-colored, acicular crystals, and outside of which a line of round-celled accumulation is frequent. Bacterial clumps and venous thrombi are present.

The described changes in the interlobular fat-tissue are likewise seen in the parapancreatic fat. The following is the history of Case XXXIII., for the notes of which I am indebted to Drs. J. J. Putnam and Whitney. The patient was a gentleman, forty-eight years of age, who had been hemiplegic for several years. He was well-nourished, but not excessively fat. He had suffered from several attacks of pain in the region of the stomach, with chilly sensations, from which he recovered in the course of twenty-four hours. They were usually attributed to indigestion, but no exciting cause was ever discovered. He had one severe attack of this sort a year before his death, and became collapsed, and was covered with cold sweat. His mind was dulled and his talk somewhat incoherent. He rallied under the use of stimulants, and in the course of a day or two appeared in his usual health.

At 5 A. M. he was seized with a severe stomach-ache, and a few hours later vomited, with temporary relief to the pain. Throughout there was considerable dull epigastric pain, and occasional nausea and vomiting. In the evening, immediately after vomiting, he suddenly became collapsed. There was constant pain throughout the night, and restlessness. During the second day he improved somewhat, although annoyed by hiccough. He vomited chiefly mucus, in which were found several small, dark red lumps about the size of peas.

Early in the third day he was very restless, cold, and livid, his breathing rapid, and his pulse almost imperceptible. He was conscious but anxious, and died within six hours after the collapse became extreme.

The pancreas was about twice the normal size; on section, of a dark red color mottled with opaque-white spots and patches, which lay between the lobules of the gland. These changes were most marked in the body of the gland, the head being relatively normal. The fat-tissue near the pancreas, that in the root of the mesentery, and in the mesocolon near the spleen was of a dark red color. In places it was soft, discolored, and foul-smelling. Numerous opaque, grayish-white spots were visible beneath the mesenteric peritoneum. The splenic vein contained a soft, dark, adherent thrombus which was continued into some of the pancreatic veins. Recent thrombi were also found in some of the mesenteric veins. The spleen was slightly enlarged, the pulp increased and dark red.

There was no infiltration in the vicinity of the solar plexus and semilunar ganglion.

There was no evidence of a peritonitis.

In the microscopic examination of the hardened pancreas there is seen a sharp differentiation of the section into three zones.

The intermediary zone represents the interlobular fat-tissue which is continuous with that around the pancreas. It is not only extensively infiltrated with blood, but is often transformed into a porous structure from the apparent destruction of fat-cells. Elsewhere it contains a fibrillated meshwork, finely granular material, bacteria, and numbers of acicular fat-crystals. There is also an occasional round-celled infiltration of this fat tissue between the relatively normal portions of the pancreas and the hemorrhagic and necrotic interlobular fat-tissue.

On the one side of this intermediary zone the acini are distinctly defined and the nuclei clearly stained. Occasionally lobules are seen with granular epithelium and indistinct nuclei. There are, in places, an intra- and inter-lobular infiltration of blood-corpuscles and numerous accumulations of round cells. The interlobular tissue shows a fibrillated meshwork, apparently clotted fibrin; in the smaller ducts are numerous leucocytes.

On the other side of the hemorrhagic zone, although the lobules are distinct, the borders of the acini are often confused. The cells are granular, frequently not differentiated, and there is no staining of the nuclei. At times the lobules are replaced by a granular detritus or the cells are widely separated from each other. Here and there among these necrotic acini are stained islets, apparently bacterial colonies, thrombotic veins, and, more rarely, small accumulations of round cells.

At the edge of the pancreas is a large venous thrombus containing innumerable bacteria.

Of the seventeen cases of hemorrhagic pancreatitis, fourteen were males and two were females, the sex of one person not being stated. Their ages were as follows:

[1] Unless otherwise specified, the sections from the specimens hardened in alcohol are made with a microtome, stained in hæmatoxylin, carmine, or aniline blue or brown, dehydrated, and mounted in glycerine or balsam.

Years of age.	Number of cases.
From 25-30	1
" 30-35	2
" 35-40	1
" 40-45	4
" 45-50	1
" 50-55	1
" 55-60	2

One was described as a young adult, two as adults, and nothing was stated concerning the age of two.

The patients were usually in good health at the time of the attack, a few of them being conspicuously strong and robust. Nearly one-half of them were abundantly or superabundantly provided with fat tissue.

A small fraction, nearly one-sixth, was addicted to the abuse of alcohol. Nearly one-half of the cases suffered from previous attacks of indigestion.

These attacks were usually characterized by pain, which was colicky, gastric, or abdominal, and so severe in one instance as to suggest impending perforation. Vomiting, either watery or bilious, or both, was noted. Nausea, belching, and diarrhœa were recorded. Jaundice occurred in a single instance.

It is obvious from the above statement that the previous digestive disturbances were rather gastric or gastro-duodenal than enteric.

The immediate attack began, in the great majority of cases, with abdominal pain, usually without known cause, though rarely some irregularity in diet appears to have been an immediate predecessor. The pain was violent, intense, or severe, either constant or paroxysmal. Its seat was usually in the upper abdomen, and, in one instance, was stated to have followed the course of the pancreas; subsequently, in one-fifth of the cases, the abdominal pain became general.

The initial pain was usually followed by vomiting, more rarely by nausea alone. In one case there was a conspicuous record of no vomiting. The vomiting was constant, repeated, or occasional. It might be copious. It was bilious at times, or black, and contained, in one instance, dark red clumps the size of peas.

Constipation was a symptom of frequent occurrence and a diagnosis of intestinal obstruction was made in three instances, in one of which laparotomy was performed. The occurrence of diarrhœa was noted in but one case. Hiccough and albuminuria each were reported in a single case.

Fever was an inconstant symptom. When present it was of early occurrence, and might be high on the second day. On the contrary, the temperature might be normal on the first day and subnormal on the following day. Delirium was present in three cases.

A tympanitic swelling of the abdomen was of no infrequent occurrence. It was usually general, or in the upper abdomen, and was rarely localized in the lower abdomen. In one case, thought to be of intestinal obstruction, a swollen intestinal convolution was to be felt in the right side.

Symptoms of collapse were almost invariably present, and usually directly preceded death.

This occurred as follows:

On the 2d day in	3 cases.
" 3d "	5 "
" 4th "	3 "
" 5th "	1 case.
" 6th "	1 "

It took place after a few or several days, each in one case.

The diagnosis lay between intestinal obstruction, perforative peritonitis, and an irritant poison.

The pancreas was found enlarged, either throughout or at one extremity, usually at the head. The gland was frequently doubled in size, and might seem still larger when abundant fat-tissue was present. The enlargement has been compared to the size of a man's arm.

The gland was generally dense, sometimes friable, and has been noticed to be of diminished consistency.

The existence of hemorrhage was usually suspected by the appearance of the surface, which is of various shades of red. On section, however, the color may be dark-red, reddish-brown, violet, reddish-black, or even black. The modification in color may be uniformly distributed, or lie in patches or in specks. The patches correspond with nodules which may project above the surface. These discolored patches may show white specks or streaks, and the red color may lie in the interlobular tissue of the pancreas.

The color of the section may be affected by the presence of associated alterations, one of which is accidental, the other may be incidental. The former is due to an excessive quantity of fat-tissue in the pancreas, sometimes appearing to form nodules as large as hazel-nuts, and to treble the size of the gland. Bands and spots of a translucent yellow are thus produced which are mottled with shades of red. The incidental appearance is due to the presence of opaque-white specks, spots, and streaks, which are generally known, since the publication of Balser's[1] article, by the term fat-necrosis. These were seen in six of the cases, and it is not improbable that the granular exudation described by Löschner may have been of the same nature.

The pancreatic duct may contain a bloody, ichorous fluid, and its branches may be plugged with clotted blood. The duodenum and jejunum may show swelling, injection, and ecchymosis.

The hemorrhagic infiltration may be found beyond the pancreas, both in the parapancreatic tissue, mesentery, meso-colon, and in the omentum. It may extend downward behind the descending colon, nearly to Poupart's ligament, and may be found at the outer border of the left kidney.

The splenic artery and vein are usually free from changes. The latter may contain a thrombus. The portal vein has been found free from thrombosis.

The condition of the other organs is essentially negative.

The heart may contain liquid blood, or a differentiated clot may be found in the right ventricle.

The spleen may be small, with wrinkled capsule, or it may be slightly enlarged and injected.

The peritoneum usually shows no alterations, although evidence of recent peritonitis may, at times, be found.

The microscopical changes to be found in the diseased pancreas have been sufficiently detailed in the reports of Cases XXVIII. and XXXIII. They consist essentially in the evidence of an extensive, hemorrhagic infiltration limited more particularly to the interlobular tissue. Also in the presence of cellular and fibrino-cellular formations in the same tissue. Smaller accumulations of round cells and hemorrhages may be found within the lobules, and the ducts may be filled with indifferent

[1] Loc. cit.

cells. The appearances characteristic of a coagulation-necrosis, also thrombosis of the smaller veins, are to be found in many lobules as early as the third day, as are all the other changes above described. The spongy condition of the hemorrhagic region and the numbers of associated bacteria are indicative of putrefactive changes. Whether these are of ante- or post-mortem origin the evidence at hand does not decide. Finally, the discovery by Osler and Hughes[1] may be mentioned, where an increased number of leucocytes was found in the semilunar ganglia, and an indistinctness and cloudiness of the ganglion cells.

In summing up the clinical and anatomical characteristics of these cases we have the following brief description of an affection which wholly justifies the term acute hemorrhagic pancreatitis.

It is a disease which may take place without any well-defined cause, but is most likely to occur in persons who have had previous attacks of gastric or gastro-duodenal dyspepsia.

It begins with intense pain, especially in the upper abdomen, soon followed by vomiting, which is likely to be more or less obstinate, and, not infrequently, by slight, epigastric swelling and tenderness, with obstinate constipation.

A normal or subnormal temperature may be present and symptoms of collapse precede, by a few hours, death, which is most likely to occur between the second and fourth days.

The gross lesions are due to hemorrhage in and about the pancreas, and the microscope shows cellular and fibrino-cellular exudations in its interstitial tissue and necrosis of its lobules.

(*To be continued.*)

ORIGINAL ARTICLES.

ACTINOMYCOSIS IN MAN, WITH THE REPORT OF A CASE.[2]

BY GEORGE A. BODAMER, M.D., B.S.,
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ALTHOUGH about forty-nine cases of actinomycosis in man have been recorded abroad, but four authenticated cases are found in American medical literature; these cases are two by Dr. Murphy, of Chicago (*N. Y. Medical Journal*, 1885, vol. xli. pp. 17–19); one by Dr. Schirmer (*Chicago Med. Journal and Examiner*, vol. liii. p. 354); and the last by Dr. Ochsner (*Ibid.*, vol. liii. pp. 1–3), to be quoted below. Hence I think the case which came under my observation worthy of record.

My investigations of actinomycosis in animals, which I made in 1883–84, at the Pathological Laboratory of the University of Pennsylvania, are about to be published in the *Journal of Comparative Anatomy and Surgery*. Since these investigations I have obtained several more cases in animals, making a total of ten cases.

My case of human actinomycosis is as follows:

Wm. M. H., aged thirty-two years. Born in England; occupation miner; mother, four brothers, and three sisters living and in good health; father died of senile debility. Patient had ordinary diseases of childhood, besides pleurisy at the age of twenty-eight years. He came to this country at the age of twenty-one years, and continued his occupation steadily as a miner, and he was often subjected to injuries of the head. In 1877 he was severely struck on the right side of the head by a prop. He continued to work in the mines, and while in the Stockton Coal Company's mines, Luzerne County, Pa., he noticed for the first time a swelling at the angle of the right inferior maxillary bone, which would go and come; and, as the patient expressed it, came to stay in the winter of 1882, and soon after reached the size of a chicken's egg, when he became alarmed, and began poulticing it; at the same time he had the three upper and three lower back molars of the right side drawn. All six teeth were sound.

Patient states he was advised to keep the gums bleeding and irritated, believing this treatment would reduce the swelling and effect a cure. A growth, however, promptly made its appearance, filling up the cavity made by the extraction of the teeth of the lower and upper jaws. About this time he ran against a projecting drill (an iron rod six feet in length with a sharp, square end two inches broad), which severely injured the tumor; the wound bled profusely but healed promptly.

During 1883 the swelling made little progress, and in May, 1884, he came to Philadelphia, and was admitted to the surgical wards of the Pennsylvania Hospital, where, as he states, a tumor was removed. He then returned to work, and had no

FIG. 1.

Case of actinomycosis.

medical treatment for four years, when he again entered the Pennsylvania Hospital in November, 1888,

[1] Case XXIX.

[2] Reported to the German Medical Society of Philadelphia, January 14, 1889, and to the Pathological Society, Jan. 24.

having in the meantime sustained some more injuries of the diseased jaw. There is no evidence that a diagnosis of actinomycosis had been made.

On Jan. 11, 1889, he came under my observation at the German Hospital, when I examined him in conjunction with Drs. John B. Deaver and F. Gross.

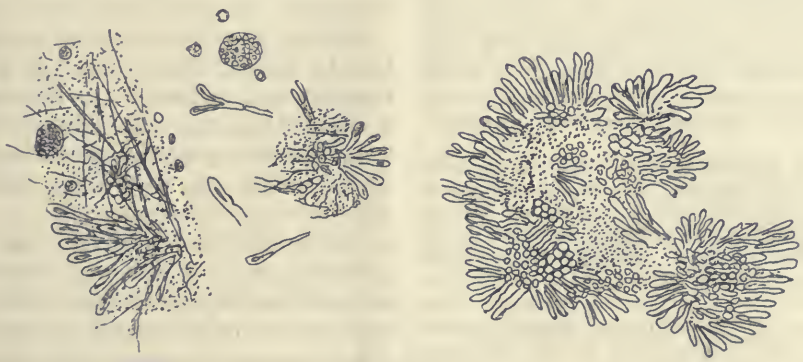
Present condition: Patient is a muscular, well-nourished, robust man, of five feet five and a half inches in height, with good complexion, weighing one hundred and fifty pounds, and has a good appetite. The only lesion observed is a swelling on the right side of the head, face, and neck (see Fig. 1, from a photograph) which consists of a hard, infiltrated, uniform mass, extending from the clavicle to the temporal region, involving the anterior half of the temporal muscle, the muscles of the face, and the glands of the neck, and evidently in intimate union with the cranial bones of the region described. The swelling implicates also the cavity of the mouth; the buccal muscles, as well as the lower and upper jaw, are much enlarged from the swelling, which causes an ankylosis, so that the patient cannot separate his teeth more than a quarter of an inch, and is unable to take food except by forcing it through this narrow space; this, the patient said, has been the case for the last two years. While mastication is next to impossible, the power of deglutition appears to be perfect. He uses mainly food in a crushed or liquid state.

The swelling is uniformly firm except in the temporal region, where there is a fistulous opening; another fistulous opening is at the angle of the jaw, but numerous scars upon the neck indicate that there were a number of fistulous openings which have healed. A third fistulous opening into the mouth corresponds to the third lower molar tooth. The patient states that there had been a great deal of suppuration from the former fistulas. On the whole, the right side of the head, face, and neck is about one inch thicker than the left side; the pain is slight, somewhat increased by pressure and is more intense during the night. A large scar extending from the angle of the mouth to the lower border of the inferior maxilla indicates a former removal of some of the tumor mass in 1884, at the Pennsylvania Hospital, as the patient states.

The discharge from the fistulous openings is sometimes copious, but at present not more than a few drops at a time; it consists of a purulent, odorless, viscid liquid of a grayish color, and suspended in it are numerous yellowish granules distinctly recognizable by the naked eye, being of the size of small poppy seeds. These granules I found under the microscope to be actinomyces, the radiating fungus peculiar to actinomycosis, and I diagnosed the case accordingly.

The fluid in which the fungus is suspended contains numerous compound granule cells, granular material, pus corpuscles, and fragments of fibres in a state of fatty metamorphosis; the fungus presents itself in its perfectly developed or adult form as radiating tufts, round or elongated, measuring $\frac{1}{200}$ to $\frac{1}{50}$ of an inch in diameter; the mycelia are unusually plain and single free mycelia or clusters of two and three, as I have seen in animal actinomycosis, are quite scarce (see Fig. 2).

Fig. 2.



Actinomyces.

The patient was operated upon by Dr. Deaver assisted by myself, Feb. 9, 1889. An exploratory incision being made from the fistulous opening in the temporal region to within one inch of the angle of the inferior maxilla and the skin which was involved dissected back, disclosed a very vascular infiltrated mass, fibroid in character, with actinomyces studded through its entirety; also two cavities one-half inch in diameter which contained material in a state of fatty metamorphosis which, under the microscope, revealed pus, compound granule cells, blood, oil globules, molecular débris, and the fungus actinomyces.

There was a profuse general oozing of blood over the whole surface of the exposed swelling. A sinus led from the fistulous opening in the temporal region down to the zygoma, which was necrosed, and beneath the same into the pterygo-maxillary region.

A part only of the tumor mass was removed, and the exposed growth was thoroughly curetted and irrigated with 1:1000 sublimate solution; a drainage tube was inserted, the skin adjusted and the wound dressed antiseptically.

The four cases of actinomycosis in man recorded previous to this case of mine are as follows:

Case I.—A female twenty-eight years old, suffered severe toothache of left lower jaw with subsequent swell-

ng in mouth and throat, the swelling (abscess in left tonsil) was opened and patient recovered rapidly. About seven months later, a swelling the size of a walnut appeared on the left side of the neck, which was lanced; the pus contained actinomyces. As the swelling and induration continued to increase, an operation was performed and the growth removed. Patient made a rapid recovery, gaining twenty-six pounds in five weeks and now (1885) is in good health.—Dr. Murphy, *New York Medical Journal*, 1885, vol. xli. p. 17.

CASE II.—Thomas C., aged eighteen, while in Ireland had severe toothache; later, a swelling appeared and enlarged with more or less pain; a carious tooth was found, a swelling was punctured, and a few drops of pus escaped which contained actinomyces; the sinus was scraped out and the parts completely healed. Later, a swelling reappeared in the same place which was opened and a drainage tube inserted, after which Dr. Murphy did not see the case, but heard that the opening healed. (Ibid.)

CASE III.—A Pole, twenty-five years of age, family history good. When eighteen years of age, while chopping wood, received a slight incised wound of cheek. Following this injury both jaws began to swell; the swelling in the left side disappeared and that on the right side was opened and a fistula followed. In June, 1886, patient passed into Dr. Schirmer's hands. The exudate from the fistulous opening was examined by Prof. Fenger and Dr. Schirmer; and actinomyces was found. Patient lost his appetite, became emaciated, followed by severe cough and the expectoration contained actinomyces.—Dr. Schirmer, *Chicago Medical Journal and Examiner*, vol. liii. p. 354.

CASE IV.—Man, aged fifty-six years, whose occupation was stock-raising and dealing, was much exposed to draughts and cold. He suffered pain in the left antrum of Highmore, and although he had six teeth drawn which were sound, no relief followed. For six months patient suffered excruciating pains in left antrum and both eyes. Early in 1878 there was a spontaneous opening of the abscess into the pharynx, from time to time evacuating considerable pus and blood; some of the discharge entered the larynx at night giving rise to severe cough. In 1880 was operated upon, curetting and irrigation of the parts resorted to; irrigation was kept up two years, patient suffering continuous pain. In 1885-86 severe cough with dulness over lungs, roughened respiratory sounds and mucous râles followed by great loss of weight. Microscopic examination of the sputum revealed actinomyces.—Dr. Ochsner, *Journal of Amer. Medical Association*, 1886, pp. 608-610; *Chicago Medical Journal and Examiner*, vol. liii., No. vi., pp. 1-3.

Lack of space will not permit me to refer to the European cases of human actinomycosis in the present article.

ON UNUSUAL METHODS OF ACQUIRING SYPHILIS, WITH REPORTS OF CASES.[1]

BY L. DUNCAN BULKLEY, A.M., M.D.,
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THE subject which is indicated by the title of this paper is so vast, and relates to such a mass of facts recorded in literature, that it will not be possible to compass it at all completely, much less to consider exhaustively all the phases which it may present; indeed, the limits of the allotted time will permit of not more than a brief sketch of the general subject, and the elaboration of a few points, with the presentation of some illustrative cases.[1] The object of the paper is rather to call attention to the not infrequent acquiring of syphilis not only by means which are entirely innocent on the part of the sufferer, but also often in a manner wholly unexpected and generally quite unprovided against; it is also desired to provoke a discussion of the subject.

With the more general recognition of the non-venereal or innocent acquiring of syphilis, it will happen,

1st. That the dangers of the disease will be more widely recognized and guarded against, and so *fewer cases will occur.*

2d. Cases of syphilis will oftener be recognized when there is no history of venereal exposure.

3d. Less stigma will be attached to the disease, when it is well recognized that many acquire it innocently; and

4th. As a result of this last, syphilis may before long be placed, where it belongs, among the infectious diseases, under the care of health authorities; it is hoped that then something will be accomplished toward stamping out a malady which has already caused untold woe, both to the innocent and those guilty of sexual transgressions.

The general fact is already well known to the profession, in a general way, that syphilis is not always a venereal disease—that is, that it is not always acquired in impure sexual intercourse. But I think that the relative frequency of the different modes of infection is not sufficiently well known, and is not adequately considered in practice.

While syphilis still stands, as it has stood for many centuries, preëminently a venereal disease, the records of the past are very full of facts concerning its innocent transmission, and literature contains accounts of dozens of epidemics, large and small, involving thousands of persons who have acquired the disease innocently. There may also be found reports of individual cases, also aggregating thousands, where syphilis has been communicated by ways and methods which could hardly have been before suspected, and yet all in a perfectly innocent and unblamable manner.

It is not a little startling to hear so high an authority as Fournier declare, as he has recently done, from a careful study of his cases in private practice,[2] that in about twenty-five per cent. of all

[1] Read before the New York Academy of Medicine, January 17, 1889.

[1] It will also be impossible to present here the references to the various authors and writings on the subject, a full bibliography of which would occupy even more space than the article itself. These will be given later, in a fuller consideration of the subject.

[2] Fournier, Annales de Dermat. et de Syph., tome viii. No. 12, 1887, p. 757.

cases of syphilis in females, the disease is innocently and undeservedly acquired; and in the discussion on his paper, Ricord stated that his experience would fully corroborate the statement.

The proportion of cases of *syphilis insontium* in males is probably smaller than in females, but that the disease is not infrequently acquired by males in a most blameless manner is abundantly shown by a study of literature, and will also be seen by what shall follow.

In looking over the records of patients which have passed under my care in public and private practice, I find notes, more or less complete, of something over fifteen hundred individuals with syphilis. The larger share of these came under my care on account of skin lesions during the various periods of the disease, more commonly after the primary sore had disappeared, and in some instances even many years thereafter; and but a certain proportion of them came on account of the local sore, or even with its remains still present. In the greater number of instances no record whatever was made, either of the location or the character of the primary lesion, or of the source of infection, if, indeed, it was known to the patient or to myself. So that it is impossible to draw any definite conclusions in regard to the exact proportion of cases of *syphilis insontium* among them.

But among these fifteen hundred cases, notes of extra-genital chancres occur in sixty-six instances, or in 4.4 per cent. of all cases of syphilis; in most of these patients the sore was acquired in a perfectly innocent and unsuspected manner, quite unconnected with any venereal transgressions; of these sixty-six cases of extra-genital chancres, the larger number occurred in males, namely, thirty-four to thirty-two females.

Examining now more carefully the records of about four hundred cases of syphilis in private practice, I find that just one-third of all patients were females, and of these, over ten per cent. had hereditary syphilis; it further appears that in a very considerable share of the rest of the cases the disease was acquired in an innocent and perfectly unsuspected manner, generally from husbands, and in a number of unmarried females from lovers by means of kissing. It may be stated that in at least forty per cent. of the cases alluded to, of syphilis in females in the private practice of the writer, the evidence is as good as it is possible to furnish, that the disease was acquired innocently and undeservedly. Surely such an unnecessary amount of sickness and suffering calls for a consideration of the means by which it may be avoided.

Returning to the cases of extra-genital chancre before alluded to, they may be tabulated as follows:

PERSONAL CASES OF EXTRA-GENITAL CHANCRE.

Location.	Male.	Female	Total.
Chancre of the lip	13	18	31
" " finger	6	1	7
" " breast	—	6	6
" " tonsil	2	3	5
" " tongue	3	2	5
" " cheek	3	—	3
" " chin	1	1	2
" " eyelid	2	—	2
" " nose	1	—	1
" " ear	1	—	1
" " hand	—	1	1
" " forearm	1	—	1
" " sacral region	1	—	1
Grand total	34	32	66

Time will not permit here of a report of these cases in full, which will be given at a later date, as they are full of points of the greatest interest; some of the more important or peculiar cases will be mentioned later in the further illustration of our subject.

Turning now to the consideration of the "unusual methods of acquiring syphilis"—that is, by means other than by venereal contact—we find from a study of the thousands of cases recorded in literature, that the methods of transmission may be conveniently classed under three main groups, in each of which literally dozens of sub-groups, or separate modes of infection, may be made out; the limits of the paper permit of but the most brief allusion to the main groups, and some of the data falling under them.

Thus, non-venereal infection of syphilis may take place as:

I. *Syphilis economica*, where in the ordinary economic relations of domestic and industrial life the disease is transmitted, innocently, from one person to another.

II. *Syphilis brephotrophica*, where the disease is acquired by or from infants, in connection with their nourishment and care.

III. *Syphilis technica*, where the opportunity for the transference of the poison occurs in connection with various forms of body-service, medical and surgical, or of like nature.

We may now briefly consider a few of the details of these classes.

I. SYPHILIS ECONOMICA.

This is a very large class, and includes three main groups: 1, domestic transmission; 2, industrial transmission; and, 3, personal transmission.

1. *Domestic transmission.* All are familiar with many of the ordinary modes of the reported communication of syphilis by means of spoons, knives, forks, cups, glasses, and jugs. Tobacco pipes have been very frequently the means of carrying the infection, as has been repeatedly observed, especially in families or communities living rudely together, where one pipe may serve for several persons. In the fol-

lowing case, now under treatment for chancre on the lip, this seems to have been the method of communication:

CASE I.—Mr. F., aged fifty-one years, while living in a mining camp in California, received a blow on the under lip, in November, 1888, about six weeks previous to coming to the Skin and Cancer Hospital, January 2, 1889. The blow caused but little trouble, there being no outward injury, but only an abrasion within, caused by the patient's teeth. He was in the habit of smoking various pipes lying around in an assayer's office where he worked, resting the pipe on the affected lip, the action of sucking bringing the bruised part in contact with it. As some of the men frequenting the office were known to have sores in the mouth, it is supposed that the poison was readily conveyed on one or more of the pipes to the surface abraded by the injury. A week or two after the bruise the surface became again sore, and soon an induration appeared, and ten days later submaxillary adenopathy. The sore was cauterized several times, but failed to heal, and he came East for treatment.

When first seen the lesion was something over an inch in cross diameter, and occupied the inner half of the lip almost to the gum, in the centre; the raw surface secreted a glairy fluid, and induration was well marked. There were some general adenitis and a maculo-papular eruption, which had existed about a week. Under active antisyphilitic treatment the eruption soon disappeared and the sore healed.

Cigars have also been reported by several observers as a means of conveying the syphilitic poison, both after having been smoked by another, and also when fresh from the manufacturer. Some time ago[1] the writer reported two cases of chancre of the lip in physicians, where this appeared to be undoubtedly the mode in which infection occurred, and it is hardly necessary to repeat the observations here. Another case, less certain, has since been under observation and treatment.

Various articles of personal apparel, such as shirts, drawers, pantaloons, and handkerchiefs, have been known to transmit the syphilitic poison from one person to another, and the following interesting personal case shows how wearing of the article on a single occasion, in this instance a bathing suit, may suffice to inoculate the disease:

CASE II.—Mr. Y. E., aged forty-five years, a gentleman with a grown-up family, came to me on account of a diffuse maculo-papular syphilide, with general adenopathy. He was perfectly positive that he had had no venereal exposure in any manner whatever, and was shocked as well as indignant at the suggestion that he had syphilis, he having only very recently cautioned his son against sexual transgressions. He had no sore on the penis, and I searched a long time to find the site of entry of the poison, for the eruption was manifestly of such a recent syphilis that I felt confident that the chancre, or its well-marked remains, must be still present. The lips and cavity of the mouth were examined in vain, as also the fingers and all other portions of the body where one might expect to find such a sore.

On questioning still further as to whether he had not had some ulcerating spot on any portion of the body, he then called my attention to the sacral region, where he said that he had had a raw point for a number of weeks, which had been regarded as a simple ulcer, or as an epithelioma, by his family physician; it had, however, been suspected to be a chancre by a surgeon in another city, just before his visit, and just after the eruption appeared.

On examining the region, there was found an ulcer, deep in the fold of the nates, about an inch behind the anus, which, when the parts were separated, presented a round, ulcerated surface, about half an inch in diameter, sharply defined and with a grayish-white base; a distinct hardness could easily be made out on careful palpation.

The supposed and probable mode of infection was very interesting. He had long had some itching in that region, even for years, and at times a fissure would form along the crack of the nates, which, he said, existed also just before the new lesion developed. Some six weeks before his visit he had been in bathing, and, quite contrary to his usual custom, he had worn a strange suit of bathing clothes, and on account of the itching in that region he had rubbed and scratched the part vigorously through the bathing trowsers; the sore developed a few weeks after this single wearing of the public bathing suit at Coney Island. It is easy to understand how a previous bather with mucous patches at the anus had left the secretions on the garment, and the exertions of rubbing the dampened cloth upon the fissure readily afforded the best possible opportunity for infection. The patient suffered from a pretty severe attack of syphilis.

Similar cases have been reported where the disease was communicated to the region of the anus by wearing the clothes of others.

In addition to wearing apparel, cases are on record where the poison has been conveyed on bedding and toilet articles, sponges, combs, toothbrushes, and syringes; a case is also reported where an opera glass served as the conveyer of the virus, and Otis mentions a cane as a bearer of syphilitic contagion.

In the following case of chancre of the tongue, now under treatment, it seemed more than likely that the infection took place by means of pins, which the girl was in the habit of putting in the mouth, and carrying them just in the site where the chancre appeared.

CASE III.—Miss A. A., an intelligent and modest girl, aged twenty-five, a saleslady in one of the large Sixth Avenue variety stores, noticed a small ulceration of the left side of the tongue about six weeks previous to her first visit, October 31, 1888; the glands beneath the jaw on that side began to swell two or three weeks later. When first seen there was

[1] Archives of Dermatology, 1879, vol. v. p. 343.

a small induration at the left side of the tip of the tongue, with a fissure through its centre; beneath the tongue there were a few mucous patches. Under a soothing treatment the soreness increased, and the swelling and hardness augmented, until three weeks later it was the size of a hazelnut; talking and eating were decidedly painful, and mucous patches had developed in the throat; the submaxillary glands also increased much in size. She was then placed under antisyphilitic treatment, and at the present time the size and hardness of the lump have greatly diminished, as also the adenopathy. She has had very little eruption, except about the mouth, where a very characteristic flat papular syphilide still exists, rebellious to treatment, with occasional mucous patches.

After repeated questioning of her alone, I could not discover that she had been in any way exposed to syphilis; she lived quietly at home, and had no intimate gentleman acquaintances. I was led, therefore, to accept the probability that the poison was conveyed by means of pins which injured and inoculated the tongue, as she was in the habit of placing them in that side of the mouth, regardless of where she had obtained them.

Lint and plaster have also served to convey the syphilitic poison from one person to another, and a physician once told me that he had seen a patient in whom he believed the disease to have been received by means of caustic used on a former syphilitic sore; it is not supposed that the caustic itself could convey the virus, which it would naturally destroy, but probably, as he believed, the virus had adhered to the caustic-holder in which the short bit of nitrate of silver had been inserted.

It is a little remarkable that after a very considerable search I have failed to find in journal or other literature a single authenticated case where syphilis has been acquired from privy seats and public urinals, which are popularly supposed to be a fruitful source of innocent infection; the matter is scarcely alluded to seriously by any writers, a striking illustration of the fallacy of popular impressions or beliefs.

2. *Industrial transmission.* The next sub-group of *syphilis economica* is that where the poison is acquired in *industrial transmission*, during or by means of various trades and occupations. This includes a large class of cases, many of which are recognized by everyone. Thus, the well-known glass-blower's syphilis has in times past been conveyed to many individuals by means of a common pipe employed; several small epidemics of this are reported, especially in France, and I have been able to collect a total of one hundred and sixty-two cases in which syphilis has been acquired in this manner. At one time, when from twelve to fifteen men were thus infected in one factory, five or six of their wives received the disease innocently, besides many children. Assayers and goldsmiths have also been thus affected from a blowpipe used in common, and an instance is reported where the entire family of a weaver received infection through a pipe in the mouth used to sprinkle cloth.

Musicians have acquired the disease through wind instruments, and a car conductor from a whistle borrowed from a syphilitic friend. In one instance, three furriers received the disease by means of a thread drawn through the lips and bitten off, and tack nails passed from one mouth to another have also communicated the disease. Pens, pencils, paper-cutters, and lip glue have all been the means of transmitting syphilis, and in a single instance, not very well authenticated, a coin is said to have been the means of conveying the disease. It is not a little remarkable that not even an alleged case has been found where paper money has been the medium of infection, considering the condition of many bank notes and the frequent habit of wetting the finger when handling them. A recent journal has suggested a danger attendant on wetting postage-stamps on the lips, especially such as had been previously wet and partially attached to a letter for return postage; but no case illustrating this has been found in literature.

It is commonly supposed that laundresses are greatly exposed in washing for syphilitic subjects, but the instances on record where this is believed to have occurred are very rare, and some of these very dubious. The soaking and frequent boiling of the clothes, together with the soap used, suffice to dilute and kill the poison, and the constant placing of the hands in the water renders absorption difficult.

3. *Personal transmission.* The next sub-group of this class, namely, that of *personal transmission* by innocent means, covers but few varieties, but includes very many cases where the poison is acquired by means of kissing, biting, and during other non-venereal relations. Next to the venereal act, kissing probably now affords a larger proportion of cases of syphilis than any other mode of transmission, and hundreds of instances from this cause may be found reported. Among the sixty-five personal cases of extra-genital chancre alluded to previously, no less than thirty, or nearly one-half, were on the lips; among them were a little girl, four-and-a-half years old, and another, eleven years old, infected the one by the mother and the other by the father. There were several ladies infected by their lovers before marriage, and in the two following cases the poison was received, the one on the tonsil, and the other on the lip, both from the same man, who also came later under my care, and who married the second lady.

Case IV.—X. T., a most estimable young lady, aged thirty-two, had one of the most violent attacks of syphilis which I have ever witnessed, lasting over

years, and producing serious later results, owing in part to imperfect treatment, as she lived some distance from the city. She came to me during an early general papular syphilitic eruption, with a chancre of the right tonsil of two months and a half duration. There was a considerable flat excavation of the tonsil, with decided hardness, and sub-maxillary adenopathy of that side. After the patient whose case is next narrated and her husband both came under my care, I found, on comparing dates, that he had been engaged to the first young lady during the very active stage of his syphilis, when the mouth was full of lesions, and that when the nature of the disease and its source were discovered, the engagement was broken off, and he very shortly became engaged to the next case, to whom he gave a chancre of the lip just after marriage.

CASE V.—Mrs. Z. G., aged twenty-four, became engaged to the gentleman above referred to shortly after his former engagement had been broken, and was married soon thereafter. Almost immediately after marriage a sore appeared on the lower lip which refused to heal, lasting two months, and was shortly accompanied by a general rash, loss of hair, bone pains, and general malaise. Later, she had a tubercular syphilide and recurrent nodes on different parts of the body. Her husband came under my care for a while somewhat later, with bone-syphilis, and died subsequently in another city from kidney disease, which I had recognized as being probably syphilitic.

The following case of chancre of the lip is interesting, for the reason that the disease was contracted, not from a husband or lover, but from a female friend, who was also under my treatment for syphilis.

CASE VI.—Mrs. Y. F., aged twenty-six, lost her husband two months previous to her first visit. About the time of his death, and thereafter, she had much to do with a patient who was also under treatment at the Hospital, with a large papular syphilide of the forehead and cheeks and mucous patches on the lips and tongue. In her grief she kissed her friend repeatedly, and as a result came with a large chancre on the left side of the upper lip, which was followed by the development of full constitutional syphilis. When first seen, the sore was about three-quarters of an inch in diameter, circular, elevated, and with a distinctly sclerotic base; the submaxillary glands of the left side were also enlarged.

Biting and tooth wounds are also not infrequently followed by syphilitic inoculation, and a case is on record where the disease was communicated intentionally by a bite, the giver being actuated by personal spite and hatred.

The following case illustrates the difficulties sometimes attending the diagnosis of such cases:

CASE VII.—Y. A., a printer, aged thirty-three, applied for the treatment of a greatly inflamed ear, which had been torn in a fight three weeks previous to his visit, it having probably been bitten. The surface had been much irritated by basilicon ointment and other applications, and when first seen the entire left auricle was greatly inflamed and covered with a dried, crusted exudation; the diagnosis of simple dermatitis was made, and palliative and soothing treatment adopted. Two weeks later it was recorded that the lesion had spread greatly, and then occupied a space three inches long by two wide, in front of and on the ear, extending down to the lobule. The surface was ulcerated and irregularly elevated, with considerable tumefaction of the edge; the ulcerative process extended on to the ear, and occluded the auditory meatus. The pain in the sore was very great, especially at night; mild, non-specific treatment was still continued. One week later the surface was suppurating freely, with florid granulations, and the pain was still intense at night, abating toward morning. The diagnosis of probable chancre was now made, and the former treatment stopped; a mild calomel ointment was applied, and mixed treatment given internally, with a mercurial purge. The ulcer improved almost immediately, and healed with remarkable rapidity. Some moderate hardness of the edges developed during healing. Just before it healed a large papular syphilide appeared, and, later, mucous patches, bone pains, and other syphilitic symptoms completed the history of constitutional syphilis.

In addition to kissing and biting, there belong in this class those cases where syphilis has been communicated from one person to another by scratching and pinching, also certain others where the disease has been acquired innocently, on other parts than the genital regions, by contact in bed with syphilitic individuals; likewise some others where contact in carrying a person has afforded the means of entrance for the syphilitic poison.

(*To be concluded.*)

THE TREATMENT OF ARRESTED RESPIRATION IN ANÆSTHESIA.

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IN a paper read before the Medical Society of London, Dr. Benjamin Howard maintains the following propositions:

1. The epiglottis falls backward in apnœa and closes the glottis; the first thing in order and importance is the elevation of the epiglottis.

2. Traction upon the tongue, however, and whatever the force employed, does not and cannot raise the epiglottis, as supposed.

3. The epiglottis can only be raised by extension of the head and neck.

4. The full effect of extension can only be secured with certainty by making the extension complete, as directed.

5. The method of making extension is as follows: "Having, by bringing the patient to the edge of the table or bed, or by elevation of the chest, provided that the head may swing quite free, with one hand under the chin and the other on the vertex, steadily but firmly carry the head backward and downward; the neck will share the motion, which must be continued till the utmost possible extension of both head and neck are obtained. Sometimes a slight elevation and extension of the chin will at once check stertor or irregularity of breathing; but understand, the extension which can in no case do harm, should always be rather more than appears necessary. It should never be forgotten, however, that the full effects of extension, as above described, can be secured with certainty only by making the extension complete as directed."

These propositions are, in some respects, so contrary to the daily experience of surgeons and anæsthetizers, and, if well founded, are of such supreme importance in cases of suspended, animation that we have conducted a series of experiments designed to test, in so far as this is possible by working upon the dead body, the validity of Howard's conclusions.

Limiting our inquiry to those cases of threatened death which occur from respiratory obstruction during the administration of an anæsthetic, we must first endeavor to discover the mechanical cause which is principally operative in producing such obstruction. We presume that by apnœa, Howard means, not a condition of suspended respiratory efforts through hyperoxidation of the blood, which is the true significance of the term, but cessation of respiratory movement. We cannot believe the epiglottis is chiefly at fault as an obstructive agent because, in the vast majority of cases, the air-passage is at once made free by drawing the tongue forward; since tip-traction has no effect upon the epiglottis, as stated by Howard and confirmed by our own observations, this manipulation could not relieve the breathing were the epiglottis the cause of the difficulty. The effect of traction upon the tip of the tongue is to draw this organ free from the soft palate and the post-pharyngeal wall; it is the tongue then, fallen back upon the posterior wall of the pharynx, which is the most common obstructing cause, consequently the tongue should receive the most immediate consideration. We do not for a moment deny the possibility of respiratory difficulty being caused by the epiglottis alone, though experimentally the inward passage of air was very little influenced by any position of the epiglottis, provided the tongue was carried well forward; we would insist, however, upon the position of the tongue as a matter of prime importance. Considering next the effect of tongue-traction upon the epiglottis, we are not prepared fully to endorse Howard's statement. Tip-traction moves the epiglottis not at all; this we have confirmed by many trials, both in the living and in the dead subject; but if a tenaculum is fixed in the dorsum of the tongue, two and a half inches back from the tip, traction at once draws the base of the tongue and the epiglottis with it, far forward, so that the air-passage is absolutely free, from the larynx to the mouth. Traction can, then, be so applied to the tongue that the epiglottis is raised, and the air-way made absolutely free, and we have devised an instument by which this may be accomplished without the laceration attendant on the use of hooks or forceps.

Is extension of the head and neck the only method of raising the epiglottis? Again we are compelled to take exception to Howard's statement. As detailed in our experiments, the epiglottis can be raised by traction upon the dorsum of the tongue, by pressing the greater cornua of the hyoid bone forward, by the action of gravity in the abdominal decubitus, and most thoroughly by flexing the neck and extending the head upon the neck. That Howard's position accomplishes mechanically all that he claims for it, we freely grant. The way in which the soft, collapsed structures straighten under his manipulation, the tongue riding forward, and the epiglottis springing erect, is most striking; and we are convinced that the admirable mechanical explanation he gives for this effect is correct. Howard states:

" . . . by extension of the head and neck, carried to the utmost completeness, the backward fallen tongue, the velum palati, and uvula are all simultaneously shifted from the air-way, and the entire pharynx is enlarged throughout, as follows: *a*. The tongue, the dorsum of which before fell by gravitation upon the then horizontal posterior wall of the pharynx, falls upon the now horizontal arch of the palate. *b*. The velum palati, by means of the great tension of the palato-pharyngei muscles, is pulled away from the posterior wall of the pharynx, the entire membrane being stretched tightly forward and downward behind part of the dorsum of the tongue, forming a partition which helps to shut the tongue out of the pharynx and into the mouth, where it belongs, and with part of the dorsum forms the anterior wall of a new post-oral air-way, thus created and maintained. *c*. The pharynx, anteriorly, is stretched far forward by the extremely tense sterno-thyroidei muscles acting through the thyroid cartilage, by the genio-hyoidei and mylo-hyoidei muscles acting through the os hyoidei. The base of the tongue and the velum palati are shifted forward in the manner already described, the posterior nares being shifted by the extension of the head by its occipito-vertebral articulation about sixty degrees. Posteriorly, the wall of the pharynx is shifted back its whole length by the extension of the cervical vertebræ upon each other, in all about thirty degrees, extension being particularly great just opposite the glottis. Thus the upper air-way, which before was a tortuous, angular, flaccid canal,—barely and, if at all,

uncertainly permeable,—is made an enlarged, firm, but slightly curved tube, free throughout, from the glottis to the nares."

With all this, except the backward shifting of the posterior wall of the pharynx by extension, we are fully in accord. We cannot, however, concede that his practical deduction from these facts is a step in the right direction. With the head and neck in extreme extension, the soft palate is strapped over the dorsum of the tongue, the mouth is closed from the pharynx, and the entrance of air to the lungs depends absolutely upon the condition of the nostrils. Can it be considered an additional safeguard, an improved method, to substitute for the roomy mouth, an air-way but just sufficient at the best, subject to an infinite variety of obstructions, varying in size from hour to hour, in many persons absolutely and permanently occluded? Certainly no American rhinologist would answer in the affirmative. Hypertrophies, polypoid growths, and vegetations are not the rare exception. The slightest congestion is frequently sufficient to block patulous nares. A nostril which will admit the little finger of the surgeon when the patient is standing, may become completely closed when the head is placed on a level with the body. The recumbent or dependent position, the irritating effect of ether upon the mucous membranes, cephalic congestion due to insufficient oxidation, all combine to render the nostrils unsafe—in fact, absolutely impracticable—as the sole passage of communication between the lungs and the external air. We cannot believe that recourse to this method, in cases of suspended animation under anæsthetics, could be followed by favorable results; if the tongue were drawn forward, it would certainly provide ample air-way, the passage from the pharynx to the mouth being opened by this manipulation. One of the great advantages of this method, however, as claimed by Howard, is that the necessity for traction upon the tongue is entirely done away with. If the necessity for drawing forward the tongue is not done away with, we cannot see that Howard's method offers any material advantage over that ordinarily practised in this city.

Our experiments show that extension of the head carried so far that the base-line (Reid's) makes an angle of somewhat more than fifty degrees to the plane of the bed or table, raises the tongue and epiglottis so entirely clear of the posterior pharynx that there is ample air-way; the soft palate too lies free of the post-pharyngeal wall, but is not drawn closely across the dorsum of the tongue, thus allowing respiration to take place through the mouth. If, in the course of an anæsthetization there is respiratory difficulty, the method which obtains here is as follows: The chin is immediately pressed forward by the fingers placed behind the rami of the lower jaw, at the same time and by the same manipulation the head is extended, the pillow, if any has been used, being removed; if there is still apparent obstruction, the tongue is now drawn forward. With this manipulation, except in case of foreign body or abnormality of structure, the air-passage from the mouth to the larynx is absolutely free. Hereafter we may modify this method, so placing the pillow that the neck is flexed as far forward as possible, then extending the head upon the neck, as we find that this gives us wide dilatation, the posterior pharyngeal wall representing the arc of a circle, from the concavity of which extension of the head draws forward the tongue, epiglottis, and larynx. In the method as detailed above, it rarely occurs that the tongue has to be drawn forward.

Finally, we cannot grant that Howard is justified in believing, of the hundred cases of death due to the administration of an anæsthetic, that in each case the epiglottis was in all probability unraised and continued unraised until death was complete. The appearance of the parts after death cannot be taken as indicative of their relative position during life—when inspiratory efforts are still taking place, when the rigor mortis has not made the surrounding muscles more rigid than the epiglottis. Again, the very traction upon the tongue, as usually exerted, extends the head sufficiently to carry the epiglottis free of the post-pharyngeal wall. Finally, where inspiratory efforts are being made there is no difficulty in determining whether or not air is entering the chest, the noise of its passage through the mouth and throat, the respiratory sounds, is sufficiently characteristic of its free entrance; while sinking in of the intercostal spaces, epigastrium, and suprasternal region during an inspiratory effort are absolutely diagnostic of obstruction. These signs, though not so patent, are still sufficiently clear in artificial respiration, and if the cause of death were even in the majority of cases simply obstructive, this condition of obstruction would unquestionably have been recognized and remedied, if not by position, certainly by tracheotomy or intubation.

The results of our examinations, made upon several cadavers, are as follows.

By chipping away the basilar process of the occipital bone the naso-pharynx is exposed.

Subject in the dorsal decubitus, head midway between flexion and extension, eyes looking directly upward, Reid's base-line (from the lower border of the orbit through the bony meatus) at right angles to the plane of the table.

The tongue lies in close contact with the posterior wall of the pharynx, only the tip of the epiglottis being visible. The soft palate and the dorsum of the tongue shut the mouth from the pharynx. The air-passage is completely obstructed by the tongue and epiglottis.

By means of a tenaculum passed through its tip

the tongue is seized and drawn forward as far as possible. The body of the tongue is drawn clear of the post-pharyngeal wall and the soft palate, but the hyoid bone, the base of the tongue, and the epiglottis, are influenced not at all.

The tenaculum is now fixed two and a half inches from the tip; traction draws both the base of the tongue and the epiglottis well forward.

The fingers are passed behind the angles of the lower jaw, and the latter is pressed forward; this elevates the epiglottis and the base of the tongue about a quarter of an inch from the post-pharyngeal wall. Extending the head so that the base-line makes an angle of forty-five degrees with the plane of the table, draws the base of the tongue and the hyoid bone far forward, this motion being at the same time imparted to the epiglottis, so that the latter stands upright and is separated from the posterior wall of the pharynx by an interval of about an inch. By tightly closing the jaw the antero-posterior space is still further increased.

The body is drawn to the end of the table so that the head hangs free, the latter is now extended till the base-line is parallel to the plane of the table, the antero-posterior space between epiglottis and pharynx is slightly greater than that which obtains from moderate extension. At the same time, the tongue drops toward the roof of the mouth, the soft palate is put upon the stretch, and the mouth cavity is shut out from that of the pharynx.

Placing the head so that the base-line is perpendicular to the plane of the table again produces complete closure of the pharynx, owing to the tongue and epiglottis falling directly backward.

Placing the fingers upon the posterior cornua of the hyoid bone and pressing the latter directly forward carries the epiglottis and tongue about one-half inch forward, and entirely free of the post-paryngeal wall.

With the head moderately extended and the jaw pushed forward an effort is made to crowd the tongue and epiglottis against the post-pharyngeal wall; this is found to be impossible.

Flexing the neck by lifting the head forward (keeping the base-line perpendicular to the plane of the table) separates the post-pharynx from the epiglottis and the base of the tongue by about one-half an inch. Extending the head upon the neck, the neck being still flexed, produces a yet wider separation, the antero-posterior diameter of the breathing space being somewhat more than one inch.

Placing the body in the position of abdominal decubitus, the base-line being perpendicular to the plane of the table, the hyoid bone, base of the tongue, and epiglottis all fall forward, leaving an interval of about a half inch between the epiglottis and post-pharyngeal wall.

On elevating the shoulders, by seizing them and lifting them directly upward, this space is increased to fully an inch; at the same time the arytenoid cartilages are drawn backward, exposing the glottis throughout its whole extent.

Bringing the body to the end of the table and letting the head droop forward (still in abdominal decubitus), thus flexing the neck to its full capacity, then extending the head at the occipito-atloid articulation, exposes the larynx more completely than any of the previous postures or manipulations.

Conclusions.—The epiglottis may prevent free entrance of air to the lungs even though the tongue is pulled forward. Any means which accomplishes the anterior projection of the hyoid bone immediately and infallibly raises the epiglottis and the base of the tongue.

The hyoid bone may be made to project anteriorly by direct pressure upon its cornua, by direct pressure or traction applied to the dorsum of the tongue behind the anterior half arches of the palate, by the action of gravity in the abdominal decubitus, or by extension of the head upon the neck.

Extension of the head upon the neck carried as far as forty-five degrees produces practically as patulous a condition of the air-way as forced and extreme extension. At the same time this moderate extension usually leaves sufficient room between the palate and the dorsum of the tongue for breathing to continue through the mouth.

In forced extension of the head and neck the entrance of air into the lungs depends upon the sufficiency of the nasal passages.

Flexion of the neck with extension of the head upon the neck does away with the epiglottis as an obstructing factor as completely as any other posture. This is best accomplished by supporting the head upon a high pillow, then pulling it directly backward by the hand placed under the chin, so that the weight of the head falls upon the occiput rather than upon the back of the neck.

Therefore, in case of an urgent respiratory crisis in anæsthetization we would direct that the index fingers placed behind the greater cornua of the hyoid bone, and the middle fingers resting upon the angles of the lower jaw, both these structures can be pressed directly forward, the same force also serving to extend the head upon the neck. If obstruction to breathing still persists, the tongue should be at once drawn or pushed forward by force exerted upon its dorsum posterior to the anterior half arches.

No force unless directly applied to the tongue itself is sufficient to infallibly prevent this organ from acting as an obstructing factor. No manipulation yet devised can, in every case, take the place of direct action.

The tongue may act either in conjunction with the pharyngeal walls or with the palate in prevent-

ing free entrance of air. If the position of moderate extension and direct traction or pressure upon the tongue fail to remove the obstruction to breathing, intubation or bronchotomy remains as the last resort.

MEDICAL PROGRESS.

Secondary Resection of Large Intestine after Gangrene.—MR. J. M. COTTERILL brought a most interesting case before the Medico-Chirurgical Society of Edinburgh in December last. An extremely stout woman, aged thirty-eight, was admitted with strangulated umbilical hernia into the Edinburgh Infirmary on April 14, 1888. The woman, who was pregnant (seven months), had had umbilical hernia for seven years, but the recent symptoms commenced after a slip in walking, about ten days before admission. She had not vomited during this time, and only did so once after she entered the infirmary. Her pulse and temperature were rising. Fifteen inches of gangrenous colon with gangrenous omentum were removed, and the cut edges stitched to the abdominal wound, the parts which had been in contact with extravasated fecal matter being carefully cleansed by a perchloride solution. The patient suffered severely from the effects of the operation, miscarried on the third day, losing much blood, then improved until the sixth day, when, after a severe rigor, she developed phlegmasia dolens of the right and then of the left leg. She made a good recovery, and, after three months' stay at home, returned with a request that the artificial anus might be operated upon, as she suffered great discomfort from it. For ten days before the operation of resection of the intestine she was fed on peptonized fluids, partly by mouth and partly by enema. Castor oil and enemata were frequently used to keep the bowels well cleared.

The operation, performed on September 20th, presented difficulty from the contracted condition of the lower end of the colon. The ends were carefully freed and washed. A piece of thin rubber tubing was passed around the gut through a small hole in the mesentery, and four inches removed from the upper and three from the lower end of the gut. Czerny's method of suturing was employed, and over one hundred stitches put in, in a double row; the cut edges of the mesentery were then sutured, and the gut replaced in the abdominal cavity. Some fever and restlessness followed, but the patient passed flatus next day, and a liquid motion the day after. Peptonized fluids were alone given for three weeks after the operation; the diet was then improved, and she left the infirmary cured on November 25th. Mr. Cotterill recommended in such cases the performance of an artificial anus, and later resection, and referred to the tables given by Mr. Makins, and to successful cases by Messrs. Hardie, Kendal Franks, and Weir.—*Lancet*, February 9, 1889.

The Earliest Symptoms of Inherited Syphilis.—DR. MILLER, of Moscow, bases the following remarks on the observation of one thousand cases of inherited syphilis. The first symptoms of the disease appeared during the first month after birth in 64 per cent., and during the second month in 22 per cent.; in 24 per cent. of the whole number of cases the outbreak occurred during the third week. The earliest symptoms were rhinitis and pemphigus; the former was noted in 58 per cent., and the latter in 25 per cent. of all the cases. The author attributed the coryza in many cases to the influence of cold, and does not consider this sign specific of itself. Syphilitic pemphigus is either present at birth or appears during the first, or, at latest, during the second week after birth, while idiopathic and cachectic pemphigus does not occur before the second or third week. Congenital syphilitic pneumonia was very rare (one or two per cent.). The presence of this affection is of no assistance, from a diagnostic point of view, as it cannot be distinguished from congenital atelectasis. Desquamation of the skin is not peculiar to syphilis, nor are aphthæ, which often form superficial and sometimes deep ulcers. Rhagades of the lips, especially of the upper lip, are very characteristic. Craniomalacia has nothing to do with syphilis, and swelling of the lymphatic glands is not part of the disease. Maculæ and papules were the commonest affections of the skin. Papules were observed in 74 per cent. of the whole number of cases, and in 24 per cent. of these the papules were the first sign of syphilis. Maculæ alone were found in 45 per cent., and in 17.9 per cent. of these as the first sign of the disease; but a mixture of maculæ and papules was the most frequent form of eruption (46 per cent.). The rarer manifestations of inherited syphilis are only briefly noticed in the paper. —*London Medical Recorder*, January 21, 1889.

Uses of Boracic Acid.—DR. LEBOVICZ, in the *Wiener med. Presse*, narrates some uses to which he has put boracic acid.

1. Boracic acid acts antiseptically. Every soldier should carry one ounce of it in his overcoat pocket, and a handkerchief cut into two triangles for necessary bandages. Simply sprinkling a wound with finely powdered boracic acid suffices to insure rapid healing. This remedy being odorless and itself absorbing all odors, the author has used it advantageously in abscesses, ulcers of the feet, caries and necrosis of the bones, and in complicated fractures.

2. In anthrax and after the incision of furuncles it acts well when applied directly to the parts. Forming furuncles should be painted several times daily with the following:

℞.—Boracic acid } . . āā equal parts.
Water }

3. In burns, when the flesh is exposed, it is necessary to be careful with poisonous antiseptics. Boracic acid possesses the advantage of being non-poisonous. He covers the burnt surfaces with a boracic vaseline ointment in the proportion of one to five:

℞.—Boracic acid (finely powdered) 20 parts.
Glycerine . . . . 15 "
Mix, and add,
Vaseline . . . . . 85 " —M.

Apply twice daily.

In severe burns with fever, the author combated the fever by the internal administration of the following:

℞.—Boracic acid . . . . 4 parts.
Glycerine . . . . 10 "
Water . . . . 100 "
Syrup of poppies . . . 25 " —M.
Sig.—A teaspoonful every two hours.

4. In skin diseases, such as pemphigus, eczema, rhagades, rupia, and scabies, the results obtained with boracic acid have been most favorable. The formula used was:

℞.—Boracic acid (finely powdered) 10 parts.
Glycerine . . . . . 20 "
Lanolin . . . . . 30 " —M.

The treatment of scabies consists in first taking a warm bath and then rubbing the affected parts with boracic-vaseline salve (first, one to two; later, equal parts). The duration of this treatment averaged six days. In a case of granular conjunctivitis a cure was effected within forty-five days; a like result was obtained in some cases of pannus. Chronic scrofulous otitis is improved by lukewarm injections of concentrated boracic acid solutions; the application of boracic acid glycerine (one to ten) to stomatitis, aphthæ, or tonsillitis is followed by a curative effect.

5. For coryza:

℞.—Boracic acid (finely powd.) } equal parts.—M.
Powdered coffee }

Use as a snuff.

6. In some cases of chronic endometritis with leucorrhœa and sterility, the uterus was filled with powdered boracic acid, and then a boracic acid tampon applied. After removing the tampon, the cavity was irrigated with a boracic acid solution. A cure was generally effected after a three or four months' treatment, in some cases conception following.

7. In cystitis the bladder was washed out (in acute cases) with a three per cent. boracic acid solution, and in chronic cases this treatment was followed by the internal administration of from forty-five to ninety grains of boracic acid.—*Deutsche med. Wochenschrift*, January 24, 1889.

Eucalyptus Oil in Phthisis.—Dr. Philip, at a meeting of the Edinburgh Medico-Chirurgical Society, held January 16, 1889, stated that for eighteen months he has been administering pure eucalyptus oil internally in phthisis with great advantage. The preparation "compound eucalyptus cream" was the result of experiments carried out by Messrs. Baildon for the purpose of combining the drug with cod-liver oil. The emulsion contained 5 minims to 1 drachm of eucalyptus oil, and 75 per cent. of cod-liver oil. It was borne well by patients who could not take other preparations of cod-liver oil. The eucalyptus oil disguised the flavor of the cod-liver oil to a remarkable degree.—*British Medical Journal*, February 2, 1889.

Hydroxylamin in Skin Diseases.—Dr. Eichoff, of the Municipal Hospital, Elberfeld, has found an admirable substitute for pyrogallic acid, chrysarobin, and other powerful reducing agents used in external applications for skin diseases in hydroxylamin, which is, chemically speaking, an ammonia in which one of the atoms of H is replaced by HO. The most suitable compound for dermatological use is the chloride, the formula of which is $NH_2OH.Cl$. This occurs in colorless, strongly hygroscopic crystals, which are readily soluble in water, glycerine, or spirit, the solution showing an acid reaction. When introduced into the blood, hydroxylamin forms methæmoglobin, the blood rapidly becoming of a deep brown color. In large doses—that is to say, 0.01 gramme per kilogramme of body-weight—it produces hæmaturia in consequence of the destruction of the red corpuscles. It also acts on the nervous centres, producing narcosis. The high reducing power possessed by hydroxylamin renders it a powerful poison to low organic forms, and on this account it is to be very strongly recommended in dermatology.

The preparation used by Dr. Eichoff is the hydrochlorate dissolved in a mixture of equal parts of glycerine and spirits of wine in the proportion of 1 per 1000. This is applied with a brush to the affected parts of the skin, which must first be carefully washed with soap three to five times a day. In this way he has treated five cases of lupus, five of ringworm, and one of parasitic sycosis, with excellent results. These were specially remarkable in two cases of very severe lupus. Dr. Eichoff is hopeful that this remedy, which may sometimes, perhaps, be applied in the form of subcutaneous injections, may be found useful in psoriasis, parasitic eczema, and even in lepra and syphilis. He, however, warns those who propose to try it that it is a very powerful irritant, and that even for outward application a strength of 1 per 1000 is quite enough.—*Lancet*, February 9, 1889.

Treatment of Whooping-cough. — Dr. Genser (*La Clinique*), at a recent meeting of the Medical Society of Vienna, reported that he had treated some two hundred cases of whooping-cough, according to two methods. On some he practised Michaël's method of insufflations of medicated powders into the nasal passages, while to others he administered antipyrin by the mouth.

Michaël's method was tried in seventy-six cases; by means of a bent glass tube powdered benzoic acid was insufflated into the nasal passages. The results obtained were only fair; the duration of the treatment was forty-three days; and its only real advantage was that it put a stop to the vomiting. On the whole, it was not well borne by the little patients, whom it threw in a state of excitement and frequently produced severe attacks of coughing.

Antipyrin not only reduced the number of coughing fits, but also their severity and duration. In the majority of cases the duration of the treatment did not exceed twenty-four days. The average daily dose was one and a half grains for each year, so that a five year old child took, during forty-eight hours, fifteen grains of antipyrin in two and a half ounces of water flavored with some syrup. In five cases, complicated with pulmonary lesions, antipyrin gave negative results.

These facts seem to establish the favorable action of antipyrin in whooping-cough. The author asks whether antipyrin acts as an antiparasitic, or as a sedative, diminishing reflex excitability? He favors this last supposition, and concludes that although antipyrin is not a specific for whooping-cough, it renders valuable services in its treatment, being at the same time perfectly harmless in its action.

The author likewise tried antifebrin, but with results far less satisfactory.—*L'Abeille Médicale*, Jan. 28, 1889.

Treatment of Surgical Shock.—Dr. Christopher Heath, in an able paper on shock caused by surgical operations, recommends the following treatment: Half an hour be-

fore the operation to inject into the rectum with a long tube two ounces of brandy with four of hot water. This acts as a reserve of power which can be absorbed at leisure, and has the advantage over the administration of a stimulant by the mouth that it cannot embarrass the breathing. The injection can be repeated during the operation if necessary, and may be combined with the subcutaneous injection of ether. Lastly, the author strongly advises the subcutaneous injection of from gr. ¼ to gr. ½ of morphine, combined with gr. $\frac{1}{120}$ of atropine before the patient leaves the table, believing that not only is pain thus relieved, but that sickness is materially kept in check by the combination of drugs.—*British Medical Journal*, Feb. 2, 1889.

Cocaine for Difficult Dentition.—

℞.—Hydrochlorate of cocaine . 1½ grains.
Simple syrup . . . . ʒiiss.
Tincture of saffron . . . gtt. x.—M.

Apply to the gums several times daily.—*Deutsche med. Wochenschrift*, Jan. 31, 1889.

Non-parasitic Chyluria.—A somewhat anomalous case of hæmato-chyluria of a non-parasitic character is reported in *La Clinique* as having been in Prof. Desmeth's wards in the St. Jean Hospital, Brussels. The patient was a man of thirty, who attributed the commencement of his disorder to a chill. At first he suffered from pain in the epigastrium; this was followed by some tenesmus of the bladder, causing him to pass urine thirty or forty times a day, the urine being milky, and forming a solid clot on standing. This was the third attack of the same affection from which he had suffered. His general health was very fair. After admission it was found that the character of the urine passed was subject to considerable variations, being at times red, and forming a coagulum *en bloc*, at other times milky with little or no red tinge, and occasionally of a normal appearance. Sometimes these different types followed one another in regular order, but not always. Under the microscope the epithelial elements were found to be no more than normal; there were never any casts, and, what was more remarkable, never any white corpuscles, the opacity being due to the presence of red corpuscles and to that of fat in the form of exceedingly fine granules. Diet appeared to have no effect, and the "attacks of chyluria" seemed to bear no relation to meal-times.

Sigmund has reported a case in some respects similar to this, in which a fistulous communication existed between the lacteals and the bladder, but, as no white corpuscles were found in this case, there may not be any real analogy between the two, though they agreed in an entire absence of filaria sanguinis or any other parasite. The only drug which appeared to exert even a slight effect was copaiba.—*Lancet*, February 9, 1889.

Statistics of Operations on the Gall-bladder.—DR. A. DEPOGE (*Journ. de Méd. Brux.*, 1888, No. 24) states in a thesis entitled "Surgical Intervention in Gall-stones," that up to date 78 cholecystotomies have been performed. Of these, 6 were after the method of Spencer Wells, and in the remaining 72 the bladder was sewed to the abdominal wall. Of the first series, 3 died of acute peritonitis, 1 case which had been cured had a relapse, and 2 were completely cured. Of the second series, 11 died; of these, 5 from hemorrhage and collapse, 2 of biliary engorgement, 2 of overflowing of the bile into the peritoneum, and 2 of undecided causes; besides these, 4 died in consequence of secondary complications.

Among the cures obtained were 24 cases of fistula of the gall-bladder, some of which were permanently relieved.

The number of cholecystectomies was 22, with 2 deaths from occlusion of the bile-duct, and 1 death, after a perfect cure had been established, from a cause independent of the original trouble.

Thus the death-rate from cholecystotomy in which the gall-bladder was sewed up and returned to the abdominal cavity, was 5 per cent., while in cholecystotomy in which the bladder was sewed to the abdominal wall it was 15.27 per cent., and in cholecystectomy it was 9.99 per cent. As this last number includes the 2 cases of permanent occlusion of the gall-duct, the results of these statistics would show (if these 2 cases are omitted) that cholecystectomy, as compared with cholecystotomy, deserves to hold a better position in our estimation than it has heretofore.—*Deutsche med. Wochenschrift*, Jan. 31, 1889.

Treatment of Acne.—DR. HERMANN ISAAC, of Berlin, recommends the following for the treatment of acne:

℞.—Naphthol . . . . 10 parts.
Precipitated sulphur . . 50 "
Green soap, Vaseline } . . . āā 20 " —M.

This ointment is applied by means of a hard brush, and allowed to remain from one-half to one hour, according to the intensity of the eruption. Desquamation, and with this some irritation of the affected parts will be observed the following day. The applications are renewed daily, until the desquamation is complete. Should the irritation be too severe, it is well to intermit the treatment for a few days, and apply a two per cent. salicylic ointment.

For very obstinate cases, Dr. Oestreicher recommends the following:

℞.—Powdered chalk . . . 5 parts.
Naphthol, Camphor, Vaseline } . . . āā 10 "
Green soap . . . . 15 "
Precipitated sulphur . . . 50 " —M.

The addition of camphor increases the desquamative action of the ointment, which, in order to avoid all irritation, should not be left on longer than fifteen minutes.

Another remedy which has proven efficacious is resorcin:

℞.—Resorcin, Oxide of zinc, Starch } . . āā 5 parts.
Vaseline . . . . . 10 " —M.

Dr. Isaacs has tried this remedy in numerous cases, with the best results. Under no circumstances should the ointment contain more than twenty per cent. of resorcin, as in larger doses it becomes an irritant. Medicated soaps greatly assist the action of these remedies, and should, therefore, not be discarded.—*Berliner klin. Wochenschrift*, Jan. 21, 1889.

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SATURDAY, MARCH 2, 1889.

THE DIMINUTION OF INFANT MORTALITY.

IN no period of life is mortality so great as in infancy. It has been commonly held that this was unavoidable, but a closer study of disease in infants, and of the many infective agents which attack them directly, or indirectly through the medium of food, has modified this belief, and there has been gradually brought about a diminution in the death-rate of infancy.

In manufacturing centres a recent estimate in the *Lancet* fixes this mortality at 200 in every 1000 infants. That this is dependent, not on ignorance and carelessness alone, but on cupidity also, is shown by the fact that from 28 to 60 per cent. of these children had been insured in companies paying from $25 to $35 in the event of death. Another evidence of the possibility of preventing infant mortality is found in the mortuary report of Liverpool for five years, which estimates that in this time 700 children were suffocated by parental carelessness, often the result of intoxication. Of 50 cases of sudden death in infants 22 per cent. occurred on Sunday morning, caused by Saturday night's debauch. In seeking to remedy these evils, the physician can coöperate with the authorities by closely scrutinizing the circumstances under which he is asked to give a death certificate, and by promptly reporting to the proper organization cases in which the lives of infants are jeopardized by ignorance and vice.

His further duty in securing proper hygiene for infants is outlined by Wyss in a recent number of the *Correspondenz-Blatt für Schweizer Aertze*. Physicians should prevent, if possible, the overcrowding of dwellings and the diminution of proper air space. Children who are boarding, whether with individuals or in asylums and institutions, should be under the observation of physicians, who should instruct those who care for the inmates and regulate their condition. It is the duty of practitioners to insist, whenever possible, that the mother nurse her child, and to discourage all foods and beverages except milk. Midwives and nurses must be properly educated in caring for infants before they are allowed to graduate and practise. Births must be promptly reported, and the city authorities should furnish each mother brief directions for caring for her offspring: this information should also be given to asylums and disseminated as widely as possible.

Indigent mothers who are capable should be given opportunities to act as wet-nurses, and midwives should encourage such mothers in this. The attention of the authorities should be directed to fraudulent and injurious infant foods offered for sale. A most important question is the care of the milk supply of a city. This is best performed by a bureau of milk inspection, whose officials should secure the selling of pure milk only.

The authorities of asylums, maternities, and hospitals have an especial duty in preventing the early separation of mother and child, and in encouraging the maintenance of suckling as long as possible. The legal requirements of an adoption should be strictly enforced, and the infant life be jealously guarded. Infant insurance is not unknown in America, and there are many avenues of escape from the responsibility of infantile life open to the careless and vicious; the physician should join hands with the authorities in dissipating ignorance and preventing crime.

ANTHRAROBIN.

ANTHRAROBIN, which was originally discovered by Liebermann, seems to possess equal value with its relative chrysarobin and to be capable of substitution for this substance in the treatment of skin disease. It is a yellowish powder, tolerably stable in a dry atmosphere and is not soluble in acids or water, but readily soluble in dilute alkaline solutions or alcohol, at first making a solution of a brown

color, which as oxygen is taken up passes to a green and finally a violet.

Therapeutically, anthrarobin has been employed by ROSENTHAL and by BEHREND, and more recently KÖBNER has recorded in the *Wiener medicinische Presse*, No. 53, 1888, his experience with it, employing it with good results in a 10 to 20 per cent. solution in the various forms of tonsurans as a wash. Rosenthal has used it in psoriasis and pityriasis versicolor and herpes, and Behrend asserts that it is often better in its effects upon the skin than chrysarobin, as it produces less inflammation and only discolors the skin slightly. It also possesses the additional value of making so slight a stain on the linen that it can be removed by washing.

According to most authorities, it is best to keep it in alcoholic solution and if the bottle is well corked such a mixture remains good for a week.

SULPHUROUS ACID GAS AS A DISINFECTANT.

DR. E. R. SQUIBB, in his address as President of the King's County Medical Association, at Brooklyn, N. Y., deals with the important question of sulphur-fumigation in the prevention of infectious disease. He holds that there should always be a free and abundant presence or liberation of aqueous vapor in the apartment in which the sulphur is burned, and points out the fact that very little emphasis is given to this essential particular in the printed instructions issued by boards of health. It is true that these instructions sometimes recommend that the vessel in which the sulphur is to be burned shall be placed within another larger one containing water, but this course has been advised more on the score of security against fire than as an essential advantage in the generation of the sulphurous acid gas; the heat developed by the burning sulphur effects the vaporization of a certain amount of water, which is useful. In the report of a certain State Board of Health, now before us, the recommendation is made to "suspend the vessel over a tub of water," a course not at all promotive of the fumigating process. In the absence of moisture the penetrating power of sulphurous acid gas is very slight, while it is of the highest importance that the agent shall come into intimate contact with the germs that are to be destroyed by it.

In view of the fact that tons of sulphur are burned annually, under the directions of sanitary officials, in an atmosphere practically dry, the pertinence of these views becomes apparent, and it will be necessary for some of our health officers to revise their circulars of information, in order to reach a higher degree of efficiency in this branch of their preventive labors. In this view it will be advisable for them to go beyond the recommendation to burn sulphur in a pot that is in contact with water, and to provide for the moistening of the walls and carpets and other porous fabrics, by sprinkling water over them in advance of the ignition of the sulphur, and to have water boiling in the apartment while the process is under way. In this connection, however, the bleaching properties of the gas should not be overlooked.

Dr. Squibb also called attention to the relative inertness of chlorine gas as a disinfectant in the absence of aqueous vapor. These forms of gaseous disinfection have obtained so great currency and confidence that it is highly desirable to make them as efficient as possible; our sanitarians will be among the first to appreciate the force of these suggestions.

The Maryland Medical Journal announces, by authority, that the Trustees of Johns Hopkins Hospital have appointed Dr. William S. Halstead, of Baltimore, Surgeon-in-Chief to the Dispensary, and Acting Surgeon to the Hospital. By their authority, Dr. Halstead will at once go to Europe to purchase such surgical instruments and medical appliances as may be required for the Hospital, a liberal appropriation having been made for this purpose. The ceremonious opening of the Hospital will take place on Tuesday, May 7, 1889, and patients will be received a few days later.

IT is announced that the University of Pennsylvania will erect, at an early day, dormitories for the use of its students, and a large proportion of the medical students have already signified their intention of availing themselves of the facilities which will be thus afforded.

UNDER the will of Mr. J. Ingersoll Bowditch, of Boston, Harvard College will receive $6000, the income from which is be expended under the direction of the Professor of Physiology, for the promotion of original investigations in the Physiological Laboratory of the Harvard Medical School.

DR. B. ALEXANDER RANDALL has been elected Professor of Diseases of the Ear, and Dr. Edward P. Davis has been chosen Professor of Obstetrics

and Diseases of Children in the Philadelphia Polyclinic and College for Graduates in Medicine.

At the meeting of the Clinical Society of London, on February 1st, Dr. S. Weir Mitchell, Sir William Jenner, Sir Joseph Lister, Prof. W. T. Gairdner, and Prof. von Nussbaum were elected Honorary Fellows of the Society.

A German edition of Dr. St. John Roosa's *Treatise on the Ear* has just been published in Berlin.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 21, 1889.

The President, Alfred L. Loomis, M.D., in the Chair.

Dr. Charles McBurney read a paper on

THE TREATMENT OF INGUINAL HERNIA WITH REFERENCE TO RADICAL CURE.

He said that, in view of the fact that so much had been written of late in regard to the radical cure of hernia, he hesitated to express his views on the subject, but at the same time the present contribution was the result of much thought and labor. Before giving the details of the operation which he advocated, he thought it well to present something of the line of thought which had induced him to adopt it. In 1886 he met with two cases in which a return of the trouble after operations for the radical cure of hernia convinced him that one great essential to success in any such procedure was the complete removal of the sac. The first predisposing cause of hernia was the pouching of the peritoneum at the internal ring, and in order to cure a hernia it was necessary first to prevent laxity at this point, and then to support the peritoneum firmly at this point.

These points were now recognized by all surgeons, and, consequently, the older methods of operating for a radical cure had been abandoned. He then referred to various methods designed to eradicate the sac completely, and gave a more particular description of Macewen's operation. In this procedure a stitch is firmly taken at the distal extremity, and the end of the suture is then passed in a proximal direction, several times through the sac, so that when pulled upon the sac becomes folded on itself, like a curtain. The free end of this stitch, threaded in a hernia needle, is made to traverse the canal, and to penetrate the anterior abdominal wall about an inch above the anterior ring, the wound in the skin being pulled upward, so as to allow the point of the needle to project through the abdominal muscle without penetrating the skin. The thread is pulled through the abdominal wall, and when traction is made upon it the sac, wrinkling upon itself, is thrown into a series of folds, its distal extremity being drawn farthest backward and upward. An assistant maintains traction upon the stitch until the introduction of the sutures into the inguinal canal, and when this is completed the end of the stitch is secured by introducing its free extremity several times through the superficial layers of the external oblique muscle. A pad of peritoneum is thus placed upon the abdominal side of the external opening. To accommodate this wrinkled-up pad the parietal peritoneum is previously stripped up for half an inch around the whole abdominal aspect of the circumference of the external ring.

This method, Dr. McBurney said, when practicable, undoubtedly removed the sac; but it was often difficult or impossible to carry out, and he referred to some of the classes of cases in which it was impracticable. In selected cases, however, remakable results had been obtained with it. He next spoke of Ball's method of twisting the sac until its tubular character was entirely destroyed, which, he said, was a somewhat blind method and not free from serious objections. Some sacs also were altogether untwistable. In his own operation the anterior wall of the canal was split all the way up to the internal ring. This procedure he had supposed was original with himself, but he afterward learned that it had been previously practised by Riessel. This exposed the whole length of the sac, and when this was done there were two methods of disposing of the neck of the sac, viz., by ligature and by suture; either one of which might be adopted according to circumstances. In this way it was very easy to restore the natural smoothness to the peritoneum, which he regarded as so essential to success. In all cases where it was applicable he much preferred the ligature to the suture.

The only certain method of closing the entire canal, except that portion of it occupied by the cord, was the open treatment of the wound, and even this was very difficult in many respects. It was necessary that the whole wound should be packed very closely in order to secure granulation throughout its entire length. The objection had been raised against cicatricial tissue that it melts away and in time yields. It was a fact, however, that the strength of cicatricial tissue was often a powerful instrument both of benefit and injury; and in this connection he referred to the cicatrices of burns. He had also heard it argued that cicatricial tissue does not prevent the frequent occurrence of ventral hernia after laparotomy; but the circumstances here were very different, since the transversalis fascia after the operation for hernia lay, for the most part, intact behind the peritoneum.

Some operators had practised the method of sewing up or narrowing the internal ring; but in reality, since the ring was naturally open quite wide, the stitches were of no avail in narrowing it. As a rule, there was a considerable quantity of loose connective tissue in the ring.

Dr. McBurney then proceeded to give the details of the operation employed by him for the past two years. Careful antiseptic precautions having been taken, a free incision is made, beginning a little outside the intestinal ring, and this is rapidly deepened over the whole length of the canal. Having cut through the external spermatic fascia and dissected down to the canal, the anterior wall of the latter is split up to the outer edge of the internal ring. The deeper layers of the sac are dissected off and the cord is separated from the sac up to a point a little within the abdomen. The whole sac is lifted up, so as to expose it completely up to its neck, and adhesions are separated, and, if necessary, a portion of omentum

cut away. The sac is then held high up from the internal ring, so as to prevent the return of any portion of intestine or omentum, and a ligature is applied at the very highest point. In congenital hernia, however, it is often necessary to suture, instead of ligating.

The wound is left entirely open, and from four to eight stitches are used to fix together the skin and the tissues which form the upper wall. As many more are employed for the lower wall; but as the wound is unnecessarily wide, additional tension sutures are passed deeply through the skin and superficial fascia. Iodoform is freely dusted about the wound, and then the latter is closely packed with iodoform gauze; it being one of the essentials to success that the packing should be thoroughly done. The scrotal or labial end of the wound is sewed up without packing, and a drainage-tube inserted at its lower extremity. Great care must be used in making the external dressings, and in order to prevent any contamination by urine, rubber bandaging is employed in the case of adults, and a plaster-of-Paris casing in children. Frequently the urine is also drawn with a catheter for several days succeeding the operation. Five or six weeks, at least, are required for the healing, but Dr. McBurney believes that this comparatively long period in the prone position is time well spent in such cases. None of his patients is allowed to wear a truss or support of any kind after the operation, as he regards such appliances as positively injurious under the circumstances.

The advantages which he claimed for the operation described were the following:

1. It is the only method in which the sac is completely obliterated.

2. The walls are very firmly united throughout their length.

3. The wound being open, septic complications are avoided.

4. The rapidity with which the operation can be performed renders it applicable in a great variety of cases.

He said he had now employed this method in thirty-six cases. There was one fatal case, but this result was due to alcoholism. In three the wound became infected, and the healing was slow; although there was no general sepsis in any of them. In one case orchitis was set up, and in one there was a relapse of the tumor; the cause of this relapse being undoubtedly the fact that the sac was not ligated sufficiently high up. Dr. McBurney said, in conclusion, that he had either personally seen or had heard from thirty-one of the cases within the past week, and that the result in all was thus far perfect. Of the remaining cases, two could not be found and two were still under treatment. He presented a considerable number of his patients for examination, and said that in order thoroughly to test the case he considered it necessary to invert the scrotum on the finger.

DR. L. A. STIMSON said that he had come to the meeting prepared to express his conviction of the value of Dr. McBurney's method, and he now wished also to express his appreciation of the admirable manner in which the matter had been set forth in the paper. So far as regarded the first step of the operation, the ligation of the neck of the sac and the restoration of the peritoneum to its normal state, he had nothing to add to what had been already said. As to the use of the cicatricial packing, he thought Dr. McBurney was deserving of great praise for coming out squarely against the old idea that cicatricial tissue is not strong. He wished to call especial attention to one of the chief advantages of the method, upon which Dr. McBurney had not dwelt, and that was, the very great freedom from the risk of septic processes which characterized it. There was no necessity for drainage, and no drainage was employed except at the lower end of the wound in the scrotum, the wound above being left entirely open.

To realize the full advantages of the operation it was necessary to consider the alternative measures that were at our disposal. He said he had to confess that when Dr. McBurney first proposed it, he was not favorably impressed, as he did not like the idea of keeping a patient in bed for six or seven weeks. He therefore endeavored to shorten the time by inserting a drainage tube within the canal, with the idea of limiting the suppuration to a portion of the wound; but he found that the patients were even longer in getting well than in Dr. McBurney's cases, and therefore abandoned the modification. The alternative measures of treating the canal were all comprised in an attempt to restore the original canal. In many old hernias there was, in fact, no longer any canal. The internal ring was dragged down until it overlapped the external, and there remained simply a hole covered by the peritoneum to one side, and by the skin and subcutaneous fascia on the other. There was a complete absence of the valvular arrangement of the sides met with in the normal canal. Many surgeons had attempted to restore this valve-like arrangement, and always failed. Now, if we could not restore the canal some alternative for this must be sought; and this formation of a plug of cicatricial tissue for supporting the peritoneum seemed to be a very satisfactory device. The only fear that he had had in regard to the method was that a hernia might possibly be produced at the margin of the cicatrix. In the case in which there was a relapse he should like to inquire of Dr. McBurney how the new hernia occurred.

DR. A. P. GERSTER said that, as regards the question of radical cure, the whole matter was still in an experimental stage. Time must furnish the only test, and the measures which were now employed for the accomplishment of this purpose were of such recent origin that we cannot as yet arrive at a decision. A large number of cases were also required in order to form a positive opinion. In regard to the exposure and treatment of the sac, all were agreed that it was important to reach up as high on the neck as possible, and Riessel's step of slitting up the anterior wall was no doubt a great advance. Operations of this character were necessarily complicated, and no two cases were exactly alike. In many old hernias he did not consider it necessary to slit up the anterior wall of the canal, as the upper part of the sac could be reached sufficiently well without this. There was one objection to the method which had not been mentioned. While the condition after the operation was not analogous to that after laparotomy, where ventral hernia was very liable to occur in cases where a drainage tube had been inserted into the peritoneum, there was another class of cases in gynecological practice in which the analogy was very close. He referred to those cases in which intra-mural abscesses occurred, which furnished frequent examples of the formation of ventral hernia. Here, as in cases of hernia treated by Dr. McBurney's

method there were a smooth peritoneum and a broad wound healed by cicatricial tissue.

Dr. Robert Abbe said it was perfectly true that we were obliged to leave the question of radical cure to time, but he still thought it was desirable that an expression of opinion in regard to various methods should be elicited. During the past year he had performed Dr. McBurney's operation in 17 cases, and he felt entirely convinced that it was the best that we now had at our service. In all, he had operated in 117 cases, and 52 of these were by Macewen's method, by which he had been much attracted. Macewen claimed that other operators did not succeed as well as he himself with it, because they did not operate in the right way; but if the procedure was so difficult that only Macewen could perform it properly it was scarcely worthy of the confidence of the profession. He had also employed Mitchell Banks' and other methods; but had now abandoned them all for McBurney's. One of the great advantages of the latter was the simplicity of the operation in general practice. He had not yet felt willing to leave his patients without a truss after the operation.

Dr. A. J. McCosh said that it seemed to him that enough time had elapsed to convince surgeons of the advantages of the McBurney method, and the great popularity which it had attained was a strong argument in its favor. During the past fifteen months he had had four cases, and they were all perfectly satisfactory. Like Dr. McBurney, he entirely abandoned the use of a truss after the operation.

Dr. Frank Hartley had tried various methods, and found none of them so successful as Dr. McBurney's. He believed that the cicatricial tissue was sufficiently strong for the duty required of it, and that the destruction of the funnel-shaped process of peritoneum leading to the sac tended to prevent pressure upon the cicatrix.

Dr. F. W. Murray presented a patient on whom he had operated by McBurney's method, with very good results, for double scrotal hernia of over twenty years' standing.

Dr. V. P. Gibney had seen some relapses after Dr. McBurney's operation (performed by other surgeons), but whether the method had been strictly followed according to Dr. McBurney's directions or not he was unable to say. It was a fact, however, that the relapses were fewer than after any others. He used to think that in the case of the return of a hernia after operation a truss could be more easily worn than before; but he did not think so now, as in some instances there was great difficulty in managing the truss, and it was necessary to repeat the operation. It was a very satisfactory point that the risk of the operation had been reduced to a minimum, and this, of course, was a great advance. He did not feel so confident about the utility of cicatricial tissue as some of those who had spoken, and after Willis's operation for shortening the tendo Achillis he had found that after four or five years the cicatricial tissue had stretched.

Dr. McBurney, in concluding the discussion, said that as to the manner of the recurrence of the hernia in the one case that relapsed, it was precisely the same as that seen in inguinal hernia under ordinary circumstances. Pushing the cicatrix aside the descending hernia followed the course of the cords to the external ring. The cause of the relapse he had already explained in the paper. In regard to the test of time, no results could, of course, be claimed if it were said arbitrarily that we must wait ten years before deciding as to the validity of the cure in any given case. While, however, longer time was certainly to be desired, he thought we could at least study the principles of the operation. He had not, with a single exception, refused to operate in any case. The exception was an old man with advanced Bright's disease and in a generally broken-down condition. Some of the cases were of congenital hernia. In every case except the one in which the relapse occurred he was satisfied that the sac was completely obliterated and the peritoneum rendered smooth. As to omitting to split the canal in certain old cases where the ring might perhaps be two inches in diameter, as suggested by Dr. Gerster, he claimed that even in this class of cases the sac could not be obliterated unless the canal was slit up so that the ligature could be applied at the highest possible point. He thought there was a misconception of the object of the cicatricial tissue in the minds of some, and it was not analogous to that mentioned by Dr. Gibney in referring to the shortening of the tendo Achillis. Thus the cicatrix was subjected to continuous pressure, but after his operation there was never any direct intra-abdominal pressure upon the cicatrix; the pressure being made first upon the peritoneum. Just as a very small amount of pressure would often keep a hernia which had not been operated on in place, so a slight pressure was all that was experienced after the operation. Although he hoped for the contrary, it might be that some of his cases would relapse in the course of time. So far, however, with the exception of the instance mentioned, he had failed to find any evidence of threatened or commencing recurrence in any of them.

Section on Theory and Practice of Medicine.

R. C. M. Page, M.D., Chairman.

Stated Meeting, February 19, 1889.

Dr. S. Seabury Jones read a paper on

SIMPLE, NON-TUBERCULAR, NON-METASTATIC ABSCESS OF THE LUNGS.

This is a subject, he said, which has received but little attention. Simple abscess of the lungs is, however, comparatively rare; and it would, doubtless, occur more often than it does, were it not, as Stokes has pointed out, that the lungs are provided with such an admirable natural system of drainage through the bronchial tubes. Practically speaking, it is liable to be met with in one of four forms. The first is that in which the symptoms are very obscure from the beginning, and remain so until there suddenly occurs a discharge of purulent matter. In the second form, the symptoms resemble those of pleurisy with effusion; and, in the third, those of pulmonary tuberculosis. The fourth is that associated with the variety of pneumonia, which advances slowly from one lobule to another, or is characterized by a tendency to skip from one lung to the other.

Dr. Jones said he had personally met with all the forms except the first; but undoubted cases of this variety, occurring in the experience of others, are on record. Abscess of the lungs is always accompanied with a de-

preciation of the general health, and alcoholism is apparently a prominent factor in its production. It is an affection confined to no particular age, and Dr. L. Emmett Holt, of New York, has reported in the *Medical Record* a case that occurred in an infant only three months old. When he encountered his first case, now nine years ago, he was unable to find any reference to the subject whatever in any of the text-books. This case he proceeded to narrate. The patient was a man seventeen years of age, of rather delicate general health, and affected with slight lateral curvature of the spine, and he first came under observation September 25, 1879. He was in his usual health when he was attacked with severe pain in the left side, accompanied with cough, but no expectoration. At the time he was seen the pulse was 120, and the temperature 102°. Anteriorly there were no abnormal physical signs, but posteriorly, in the subclavicular region on the left side there was complete dulness on percussisn, although no râles whatever could be found. There was still no expectoration. About October 1st a large abscess of the tonsil developed, from which pus discharged freely, and subsequently there was a discharge of purulent matter from the lungs through the mouth. After this the patient made a rapid recovery, and had no further trouble afterward.

He was led to consider this as a case of simple abscess of the lungs: *first*, on account of the short time intervening between the first symptoms and the discharge of pus; *secondly*, on account of the occurrence of the tonsillar abscess, showing a tendency to the formation of abscesses in the system; *thirdly*, from the rapidity of the recovery; and, *fourthly*, because of the dulness found on physical exploration being exclusively posterior. He was afterward confirmed in his opinion in regard to the nature of the case by the report of a case published by Dr. Henry Payne, in the *Lancet*, in 1882. The patient was a male, twenty-three years of age, who was admitted to the Ashton-under-Lyne Infirmary in June, 1881, with well-marked signs of pleuritic effusion on the left side; the trouble having commenced in the previous February with chills, pain in the side, and feverishness, the result of getting wet through. He was treated for pleurisy at this time, and recovered sufficiently to attend to his work until April, when he experienced difficulty in breathing, shortness of breath, and slight cough. He spat blood once or twice, and continued to grow worse until his admission to the hospital in June. He was treated, without improvement, until August 20th, when the following condition was noted: The patient has lost flesh since admission. The left side bulges more than the right, and measures one inch more round; movements on this side are deficient; there is absolute dulness on percussion, both back and front; no breath-sounds are heard, and the vocal fremitus and resonance are absent. The breathing on the right side is exaggerated. He has a slight cough, but no expectoration of any importance. Has night-sweats. The temperature every evening has been above 100°, and the pulse invariably above 100.

From these symptoms an empyema was suspected, and an exploratory puncture discovered pus. Accordingly, upon August 23d, an incision about two inches long was made just above and parallel to the seventh rib in the anterior axillary line, antiseptically and under chloroform. Upon opening the pleura there was a very profuse hemorrhage of dark venous blood, which could only be arrested by the injection of perchloride of iron solution. About fifteen ounces of pus escaped, and a drainage tube was inserted. There was a very profuse discharge, which in a few days became fetid. The patient continued to do fairly well until the 29th, when the temperature suddenly rose to 104°, and, after suffering severe pains in the chest, he died on the 30th. The autopsy showed the whole of both surfaces of the left pleura adherent, without a drop of fluid in the sac. The external opening made in the chest-wall led into a large, irregular cavity situated in the centre of the lung, which was in a state of gray hepatization. Dr. Payne regarded it as undoubtedly a case of pneumonia, terminating in the formation of an abscess.

Dr. Jones's second case was observed in 1886. The patient was a male, forty years of age, who was attacked with tonsillitis. There was suppuration accompanied with pain, which was ushered in by a chill, and on an incision being made in the tonsil there was a considerable discharge of pus. Subsequently he had another severe rigor, followed by high temperature, and coughed up a cupful of pus and dark blood. Still later there was another of similar character. In this case there was an area of dulness at the base of the right lung, with local tenderness on pressure. The matter coughed up was found on microscopic examination to contain the pneumococcus of Friedländer.

The third case was one in which the symptoms resembled those of tuberculosis. The patient was first troubled with palpitation of the heart, which he believed to be due to gastric derangement. There was a considerable loss of flesh, (amounting to forty pounds), and the temperature ranged from 100° to 102°. Physical examination revealed an area of dulness in the right sub-clavicular region. Dr. Jones prescribed quinine and a general tonic treatment, and sent him to the country for the summer. In July he coughed up a considerable quantity of pus and dark-colored blood. Afterward the expectoration was profuse, and he suffered from night-sweats and became greatly emaciated. He then began to improve, and as repeated examinations of the sputa failed to detect at any time the presence of the bacillus tuberculosis, the case was regarded as one of simple abscess of the lungs, and a favorable prognosis made. In a few weeks the patient regained his usual health and weight; although a small cavity still remained in the lung. Two years afterward he was seen, in excellent health, and no sign of a cavity could be detected.

He next narrated a case reported in the *Lancet* in 1884 by Mr. T. Pridgin Teale. The patient was a male, fifty-four years of age, who had been ill for three months, and the earlier history of the case was very obscure; commencing with a cold, shivering, loss of flesh, vomiting and retching, and pain in the hepatic region, but without cough or any symptom of lung disease. About two weeks before he was seen by Mr. Teale, Dr. Clifford Allbutt found the hepatic dulness increasing upward, as if there were fluid in the lower part of the thorax, and a week later Dr. Myrtle saw the patient, and, finding dulness occupying the lower half of the right lung, came to the conclusion that fluid was present, and advised early tapping. The right side of the thorax was accordingly punctured low down with the small trocar of Bartlett's aspirator, but only two drachms of fluid, clear and straw-colored, could be ob-

tained with the suction of the aspirator. Being still confident that fluid was present, Mr. Teale made a fresh puncture higher up, when very offensive, thin greenish pus appeared; and after careful and continuous aspirations about a pint of pus was slowly withdrawn. In consequence of the unexpected character of the case two hours later a consultation was held, and it was decided that as soon as the temporary relief afforded by the tapping had passed away the thorax should be opened and drained. By a fortnight afterward the patient had became more hectic, had expectorated for two days most offensive pus, and was altogether extremely ill. On the right side there was continuous dulness extending upward in front to about the level of the fifth rib, a little below the nipple, and laterally round the axilla, and diminishing toward the spine. In the recumbent posture a spot could be made out in the front of the chest having a peculiar "cracked-pot" resonance in the middle of a dull area. No râles. An incision was made at the site of the puncture, and the pleura opened. No pus appeared, only a small quantity of serum. The lung felt dense and boggy, instead of crepitant and elastic. On reintroducing the trocar and puncturing the lung, pus appeared. The puncture was enlarged so as to admit the finger, and two pints of exceedingly fetid pus escaped. A drainage-tube was inserted, and the cavity syringed out with a weak solution of carbolic acid. The after-progress of the case was extremely critical and tedious, but the patient finally made a good recovery.

Trousseau stated that for his first twenty-five years of hospital practice he had never met with a case of simple abscess of the lungs. Afterward he found two cases. Leannec met with only five cases in several hundred autopsies in those who had died of pneumonia. "Moreover," he wrote, "they were inconsiderable, few in number, and scattered through the lungs, which presented the third degree of inflammation." In 1848, Robert Graves reported six cases.

Simple abscess of the lung was no doubt more frequent, however, than was generally supposed, and in the future it would be more easy to recognize than formerly, since Koch's brilliant discovery of the bacillus tuberculosis now enabled us to make a differential diagnosis. In Pepper's *System of Medicine* some attention was given to the affection, and it was defined as a circumscribed suppuration of the lung resulting in a cavity. In von Ziemssen it was referred to only as a sequel of croupous pneumonia. In 1885, Dr. Andrew Dunlap described an interesting case in the *Lancet*, in a man fifty-three years of age, of intemperate habits. Dulness on percussion with weak breathing was discovered below the right nipple. This gradually extended upward until, in about a week, there was dulness, with almost inaudible respiration, up to the second rib. Posteriorly, there was dulness about two inches upward from the base, with weak rough respiration. Shortly afterward a prominence of considerable extent was noticed in the mammary region. This tumor seemed to originate beneath the ribs, which were bulged outward by it, and it was hard to the touch. The tumor was aspirated, and about ten ounces of pus withdrawn, which was followed by some subsidence of the tumor. At the end of a month the upper part of the tumor was less prominent, while, at least, the upper half of it was tympanitic on percussion. During this time the patient had been spitting up an ounce or two of curdy pus daily, and during the last ten days it had also been escaping from the puncture made by the aspirator needle to the extent of one or two ounces in the twenty-four hours. He gradually failed, and died about two and a half months later.

Lassen, of Kiel, had reported six cases, Runeberg, of Sweden, had collected eight (including one of his own), all of which were operated on, and, including the three cases narrated in the present paper, there were now on record thirty well-authenticated cases, exclusive of Graves's six cases, all of which recovered. Of the thirty, sixteen were operated on, and fourteen were not operated on. Of the former, four died, and of the latter, two. The main point, when an abscess had manifested itself, was to decide between tubercular and simple abscess. The rapidity of the development of the symptoms was always in favor of simple abscess, but the real test was to be found in the microscope. If in any case an operation was decided upon, free incision was no doubt the best procedure. Dr. Jones said that he had not been favorably impressed with the results obtained from the injection of tuberculous cavities. He would only operate, however, when the indications for operation were perfectly clear.

The Chairman said that the paper was quite a revelation to him. He had personally never met with a case of pneumonia terminating in abscess, and Wilson Fox and other authorities had stated that abscess of the lungs was very rare. Nothing had been said in the paper in reference to pulmonary abscess resulting from the presence of foreign bodies. He had seen a case in which an abscess developed on account of the presence of a bullet which had entered the lung tissue twenty years before, the patient having been wounded in one of the battles during the late war. He was thought to have a cavity, and was troubled with cough and hemorrhage. The case resulted fatally, and at the autopsy an abscess with the bullet in it was found. Reynolds related a similar case in an old Waterloo soldier, where the bullet remained in the lung forty years before the abscess developed.

Dr. A. L. Loomis said that the paper, with its three original cases, and its records of other cases, constituted a valuable contribution to the somewhat meagre literature of this subject. In his own experience simple abscess of the lung was very rare. He had, however, seen a very few cases which were regarded, and very properly he thought, of this nature, and in one or two instances the diagnosis was proved by post-mortem examination. In all cases, so far as his knowledge went, in which abscess had been observed, it had been preceded by the signs of inflammation more or less active, and it occurred in those in a condition favoring the development of abscess. He believed that such abscesses formed in lungs which were previously the seat of fibrinous pneumonia followed by an increase of connective tissue. When subjected to a not very active chronic inflammation abscesses were liable to form in this tissue. Such abscesses also occurred altogether in alcoholic subjects, and he had never seen them in any other. There was one point which Dr. Jones had touched upon to which he desired to call attention. It was, in his opinion, very difficult to draw the line between circumscribed empyema in certain positions and abscess of the lung, and especially if such empyema broke into the bronchial tubes, so as to allow of the escape of pus. He

thought that he may have made such a mistake himself. In any case of his own he should be very loath to pass a knife into the lung tissue, and he fancied that the necessity for such a procedure was very rare. As a rule, it diminished the chances of the patient's recovery, and it was better to leave the abscess to open spontaneously. We are certainly indebted to Dr. Jones for directing attention to this subject, and urging greater care in the matter of diagnosis.

DR. JONES in closing the discussion said that in two of his cases he had the opportunity of examining the sputa, and as there was in both instances an entire absence of the tubercle bacillus, it was on this circumstance that he based his opinion of this non-tuberculous character.

DR. A. L. STERN exhibited

WEIGERT'S HOT-AIR INHALATION APPARATUS FOR THE TREATMENT OF PULMONARY TUBERCULOSIS.

This consists of two cylinders of copper, one within the other; the air to be inhaled is heated to a minimum temperature of 212° F. by means of a Bunsen burner, and thus rendered perfectly aseptic, passes up between the two. The inhalation is to be used for four hours each day, two hours at a time, and it can be taken either in a sitting or reclining posture. It is advised, however, that when first commencing the treatment, the patient should use the apparatus for only thirty minutes twice a day.

The temperature of the air inhaled is gradually increased from 212° to as high a point as the patient can bear without suffering inconvenience; 482° being the highest temperature yet reached in any case in these inhalations. Dr. Weigert, the inventor of the apparatus, is a graduate of the College of Physicians and Surgeons of New York, but is now residing in Berlin.

As a result of the hot-air inhalation, Dr. Stern said, "there is an acceleration of the pulse, while there is a diminution in the frequency of the respirations, and the inspirations become deeper. There is at first an elevation of the temperature, the rise being from one to two degrees; but after about an hour the temperature again subsides. The difficulty of breathing incident to consumption is soon markedly relieved, and there is at first a lessening and then a total cessation of cough. Under the use of the inhalations there is at first an increase, then a decrease, and finally total disappearance of expectoration. All catarrhal symptoms disappear, and also the fever and night-sweats. There is a clearing up of the infiltrated portions of the lung, and cicatrization of cavities, when these exist, is brought about; while the strength, weight, and appetite of the patient gradually increase. The microscopic examination of the sputa generally shows at first an increase in the number of tubercle bacilli; but afterward there is a total disappearance of the bacilli, and a complete cure of the case is effected. The shortest period in which total disappearance of the bacilli has been noted is four months. This method of treatment, he said in conclusion, has now been employed in one hundred and fifty cases, fifty of which were published in Vienna, and the Chairman stated that it had been successfully practised in this country by Dr. Trudeau, of Saranac Lake, New York.

DR. FREDERICK PETERSEN read a paper on

ANODAL DIFFUSION.

He said a more exact title for his paper would be "Electric Cataphoresis as a Therapeutic Measure." He spoke first of the remarkable series of experiments in voltaic narcotism for the production of local anæsthesia by Dr. Benjamin W. Richardson, as recorded in several papers published in the *Medical Times and Gazette*, during the year 1859. The fluid used in these experiments was composed of equal parts of tincture of aconite and chloroform, with the addition of a small quantity of alcoholic extract of aconite. Dr. Richardson had unfortunately abandoned the investigation of the matter soon after this, and it slumbered for more than twenty-five years. In 1886, Wagner published the excellent results which he had obtained in producing local anæsthesia by moistening the anode with a solution of cocaine, and the matter was then taken up by a number of observers. Among these was Dr. J. Leonard Corning, of New York, who published a new method of introducing the cocaine in the *New York Medical Journal* in November, 1886, but did not give any cases. Dr. Petersen exhibited the instrument invented by Adamkiewicz, which he criticised as unphilosophical in construction, and presented an apparatus which he had himself devised, and which he said had proved very satisfactory in his hands. He had made over one hundred careful experiments, and about one-fourth of these he briefly related. The medicinal agents which he had principally employed were cocaine and aconitia, and he had found the method very successful in a number of neuralgic and other painful affections. There could be no doubt, he thought, that cataphoresis was produced by this means.

DR. LANDON CARTER GRAY said that this was a new subject. He had got one of the Adamkiewicz instruments soon after they came out, and had obtained some results with it, but they were unfortunate results. He found its application quite painful, and in one case, where the patient was just recovering from an attack of acute articular rheumatism, he found that he had induced a second attack by the use of the instrument. Because of the painfulness of the carbon disk he had given it up, and since then whenever he had occasion to resort to this method he employed an ordinary sponge electrode.

DR. M. ALLEN STARR said that he considered this a very valuable method in the treatment of pain. In one of the cases cited by Dr. Petersen, where the patient was affected with locomotor ataxia, he had been a witness of the relief afforded. There was, however, one objection which he thought might be urged against this means of treatment, and that was, the uncertainty in the matter of dosage. It seemed to him that it would be possible, however, by a series of experiments, to arrive at some definite knowledge in regard to this point. On one occasion he desired to use aconitia by this method, but he hesitated because he feared that a dangerous amount of the drug might be introduced into the system. There was one other point which had not been brought out in the paper, and that was, the applicability of this method to diagnosis as well as to treatment. By the use of cocaine, for instance, it was possible, in a case of *tic convulsif*, to determine which branch of the trigeminal nerve was affected. The injection of cocaine was disagreeable and might cause abscess, and this method was, therefore, preferable to the use of the hypodermatic syringe. He thought the method might also be employed sometimes to determine whether the pain in a

given case was of peripheral or hysterical origin; since, if it were peripheral, it would be relieved.

DR. B. SACHS said that he had imported an Adamkiewicz instrument, but, after trying it for a time, he had not felt much encouraged to continue its use. In cases not very severe ordinary electric treatment gave as much relief, and, as a rule, he found that other means were quite as effective as this, such as the hypodermatic injection of morphia, cocaine, and aconitia. While he was impressed with the cases narrated by Dr. Petersen, he thought the latter should have appended other tests on the same patients. Thus, the same troubles that were treated by the method described should have been treated by the anode alone, and by the drug alone, pressed upon the skin for the same length of time. The method at best was only palliative, and not curative. He did not agree with Dr. Starr that it afforded a means of differential diagnosis between peripheral neuritis and hysterical pain, because hysterical pain was apt to give way at any moment.

DR. W. R. BIRDSALL said that he had had no practical experience with the method, but from the literature of the subject he had formed the opinion that it was of but little value. It seemed doubtful to him whether a sufficient amount of the medicinal agent employed could be introduced into the skin to cause the results claimed, and he was inclined to attribute whatever benefit was received in the cases in which it was tried to the anode alone. The depth to which such substances could be introduced has been said to be very slight; though in many cases all that was needed was simply to bring the remedy in contact with the absorbents of the skin. He was glad to learn, however, that Dr. Petersen had found the method of greater value than he had supposed it to be. Still, he thought many more experiments were required in order that one could decide positively as to its utility. Where the nerves were superficial he would suppose it to be of the most benefit. When asked if he had found it of service in sciatica, Dr. Petersen had told him that he had not, because the nerves were too deep.

DR. C. L. DANA said that he had obtained no satisfactory results with the Adamkiewicz instrument. Some time since Dr. Squibb had reported some very interesting experiments, in which decided results were produced by the local application of various substances, in connection with oleic acid, and with a preparation of it containing one per cent. of aconitia he had caused constitutional effects. No constitutional effects, however, had thus far been produced by the method in question, and he could not but agree with Dr. Birdsall, that it was very superficial in its action. With the use of Dr. Petersen's formula he had produced anæsthesia in only one out of three cases, though this might perhaps have been due to some defect in the technique employed.

DR. J. ARTHUR BOOTH said that Dr. Petersen's method certainly produced marked anæsthesia both to feeling and touch. As mentioned in the paper, one of the experiments recorded was made on his own person, and the anæsthesia lasted for at least fifteen minutes. For some time afterward the part experimented on remained very sore and hyperæmic. He had tried it himself on three cases, and in one it afforded decided relief.

DR. PETERSEN, in closing the discussion, said that he agreed with Dr. Starr, that the uncertainty of the dosage was one of the great objections to the method, but he thought it probable that by a course of experimentation, such as the latter had suggested, this difficulty would in time be obviated. As to Dr. Sach's criticism, that no parallel tests had been reported, he would say that in some of the cases the anode *was* used alone, and that no effects were observed except just at the time of its application. As to Dr. Birdsall's remark that the method was superficial in its action, and that the use of strong currents was required against strong resistance, in one or two of his experiments an imperceptible current, employed for a greater length of time, produced the same effects. There was, as had been said, an absence of constitutional effects, and as many of the experiments had been made upon his own person, he could speak with some degree of assurance on this point.

DIFFUSE PIGMENTATION PRODUCED BY THE INTERNAL USE OF ARSENIC.

DR. WM. M. LESZYNSKY exhibited a little girl nine or ten years of age in whom the use of Fowler's solution, given for the relief of chorea, had produced very marked pigmentation all over the surface of the body. There was no reason whatever to suspect the presence of Addison's disease, he said, and the case seemed to him a must remarkable one. As to the prognosis, as regards the permanency of the pigmentation, he was unable to express any opinion.

NEWS ITEMS.

The Harvard Medical School has just received from Dr. D. W. Cheever the sum of $5000 to establish a scholarship to be known as the David Williams Cheever Scholarship.

The Royal College of Physicians and Sir Morell Mackenzie.—At an ordinary meeting of the College held January 31, 1889, the following resolution was adopted: "That the judgment of the Censors' Board in the matter of the book by Sir Morell Mackenzie, entitled *The Fatal Illness of Frederick the Noble*, be received and adopted by the College, and communicated to Sir Morell Mackenzie."

The judgment of the Censors' Board was as follows:

"The attention of the Censors' Board having been directed to a publication by Sir Morell Mackenzie, entitled *The Fatal Illness of Frederick the Noble*, the Censors' Board, although unable to deal judicially with the various matters brought into dispute therein, feels called upon to express to the College its grave disapproval of the general character of the book, and its profound regret that one, whilst a member of this College, should have given, in any circumstances whatever, publicity to statements concerning his patient, and charges against his colleagues, injurious to the interests of the public, destructive of the confidence necessary between persons coöperating in the discharge of a great responsibility, and contrary to the traditions of the medical profession throughout the civilized world."—*British Med. Journal*, Feb. 9, 1889.

Floor-space and Ventilation of Schoolrooms.—MR. H. COURTHORPE BOWEN, who is well known as having given much attention to all questions concerning school management, gives the following as his experience of the requirements of a good schoolroom. Taking the

case of a room 14 feet high, fairly ventilated and always well aired in recess, he would assign two-thirds of the floor-space to the scholars and their desks, and keep the other third for the teacher, the blackboard, etc. With single desks 22 inches should be allowed from side to side, and 3 feet from back to front, for each scholar; the passages need not be more than 18 inches for those running from back to front, and 1 foot for those running from side to side. In such arrangement, counting the passages, each scholar has (without reckoning the share of the space allotted to the teacher) a trifle more than 40 inches from side to side, and just 4 feet from back to front. In a room 25 feet by 20 feet the floor-space for scholars' desks will be 16 feet by 20 feet, with 4 feet from back to front per row, and accommodation is provided for twenty scholars; the whole floor-space is 500 square feet, and the cubic contents of the room 7000 cubic feet, with 20 square feet and 280 cubic feet per person.

Such details from those whose daily work lies in the schoolroom are of value; the cubic contents allowed are such that continuous ventilation ought to be kept up by Tobin's tubes, or window ventilation; the space allowed between the rows of desks will suffice for school lessons, but is barely sufficient to allow of any calisthenic exercises without rearrangement of the room. It is hardly necessary to say that the floor-space here recommended is greatly in excess of that required by the Government in primary schools.—*British Med. Journal*, February 9, 1889.

NOTES AND QUERIES.

To the Editor of THE MEDICAL NEWS,

SIR: Please explain the Latin construction of "Tænia solium," and oblige Yours truly, QUIZ.

[We are not able to give a *certain* answer to our correspondent's question concerning *tænia solium*. It is not uncommon, in botany and zoölogy, when the name of a *genus* is feminine, for the specific name to be that of a noun, masculine or neuter. If that were the case in this instance, the only meaning possible for solium, as a noun, is bath-tub. Why this parasite should be called bath-tub tænia (riband, band, tape) we do not know.

Dunglison's statement that *solium* is from *solus*, alone (on the idea that this tænia is always solitary), seems improbable, both because solium cannot be correctly got from solus, and because, if the intention were to give that significance, the word would be an *adjective*, and ought to agree with the feminine tænia, being then *sola* (or, incorrectly, solia). This feminine is the form of the specific names of other species of tænia: tænia lata (old name), mediocanellata, etc.—ED.]

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 12 TO FEBRUARY 25, 1889.

By direction of the Secretary of War, leave of absence for two months is granted JAMES MCKEE, *Lieutenant-Colonel and Surgeon* (U. S. Army).—Par. 13, *S. O. 44, A. G. O., Washington*, February 24, 1889.

GREENLEAF, CHARLES R., *Major and Surgeon*.—Will proceed from this city as early as practicable to Newport Barracks, Kentucky, to examine and report upon a proposed change in the location of the post hospital at the new barracks now in process of construction near that post; thence to Columbus Barracks, Ohio, to examine and report upon the necessity for an addition to the hospital at that post.—Par. 16, *S. O. 43, A. G. O., Washington*, February 20, 1889.

LAUDERDALE, J. V., *Major and Surgeon* (U. S. Army).—Is granted leave of absence for one month, to take effect between March 1st and March 15th next.—Par. 2, *S. O. 9, Headquarters Department of Texas, San Antonio*, February 15, 1889.

BYRNE, CHARLES B., *Captain and Assistant Surgeon*.—Is granted leave of absence for twenty-one days.—*S. O 44, Headquarters Division of the Atlantic, Governor's Island, New York City*, February 21, 1889.

By direction of the President, ROBERT W. SHUFELDT, *Captain and Assistant Surgeon*, will proceed to Fort Leavenworth, Kansas, and report in person to Brigadier-General Wesley Merritt, President of the Army Retiring Board at that place, for reëxamination by the Board, and on the conclusion of his examination will return to this city.—Par. 13, *S. O. 40, A. G. O., Washington, D. C.*, February 16, 1889.

By direction of the Secretary of War, JAMES E. PILCHER, *Captain and Assistant Surgeon*, will repair from Fort Wood, New York Harbor, to Philadelphia, Pa., on or about February 23, 1889, for the purpose of giving instruction to the Hospital Corps of the First Brigade, National Guard of Pennsylvania; on completion of this duty, will return to his proper station.—Par. 1, *S. O. 41, A. G. O.*, February 18, 1889.

HARRIS, HENRY S. T., *First Lieutenant and Assistant Surgeon* (U. S. Army).—Will proceed to Fort Davis, Texas, so as to arrive there on or before February 25th, and report to the commanding officer thereof for temporary duty. Upon return of Surgeon Lauderdale from leave of absence, Assistant Surgeon Harris will return to the post of San Antonio.—Par. 3, *S. O. 9, Headquarters Department of Texas, San Antonio*, February 15, 1889.

By direction of the Secretary of War, the leave of absence on surgeon's certificate of disability, granted LEONARD Y. LORING, *Major and Surgeon*, in S. O. No. 6, January 18, 1889, Department of Arizona, is extended six months on account of disability.—Par. 23, *S. O. 35, A. G. O., Washington*, February 11, 1889.

By direction of the Secretary of War, FREDERICK C. AINSWORTH, *Captain and Assistant Surgeon*, will proceed to New York City and Brooklyn, N. Y., on public business.—Par. 15, *S. O. 38, A. G. O, Washington*, February 14, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING FEBRUARY 23, 1889.

RIXEY, P. M., *Passed Assistant Surgeon*.—Promoted to Surgeon, November 27, 1888.

BRADLY, GEORGE P., *Surgeon*.—Ordered to hold himself in readiness for duty about March 1st, to the "Mohican."

LUNG, GEORGE A., *Assistant Surgeon*.—Ordered to hold himself in readiness for duty about March 1st, to the "Mohican."

PERCY, H. T., *Passed Assistant Surgeon*.—Detached from Naval Hospital, Washington, and ordered to the Coast Survey Steamer "Patterson."

WHITING, ROBERT, *Passed Assistant Surgeon*.—Detached from the Coast Survey Steamer "Patterson," proceed home, and wait orders.

BERTOLETTE, D. N., *Surgeon*.—Detached from the "Thetis," and wait orders.

HENNEBERGE, L. G., *Passed Assistant Surgeon*.—Detached from the "Minnesota," and ordered to the "Thetis."

MARMION, R. A., *Surgeon*.—Detached from the "Juniata," and wait orders.

OGDEN, F. N., *Assistant Surgeon*.—Detached from the "Juniata," and wait orders.

STOKES, CHARLES F., *Assistant Surgeon*.—Ordered to the "Minnesota."

WILSON, GEORGE B., *Assistant Surgeon*.—Ordered to the Navy Yard, Mare Island, California.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FOUR WEEKS ENDING FEBRUARY 23, 1889.

AUSTIN, H. W., *Surgeon*.—To proceed to Green Bay, Wisconsin, as inspector, February 9, 1889.

GUITÉRAS, JOHN, *Passed Assistant Surgeon*.—Granted leave of absence for sixty days, with permission to go abroad, February 13, 1889.

WHEELER, W. A., *Passed Assistant Surgeon*.—Orders to proceed to Cleveland, Ohio, revoked February 9, 1889.

DEVAN, S. C., *Passed Assistant Surgeon*.—To proceed to Charleston, South Carolina; Savannah, Georgia; and South Atlantic Quarantine Station, as inspector, February 9, 1889.

WASDIN, EUGENE, *Passed Assistant Surgeon*.—To proceed to Charleston, South Carolina, and assume charge of the Service, February 23, 1889.

DEATH.

URQUHART, F. M., *Passed Assistant Surgeon*.—Died at Evansville, Indiana, February 14, 1889.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

HUNTING YELLOW FEVER GERMS.

An Address delivered by special invitation before the Quarantine Conference, at Montgomery, Ala., March 5, 1889.

BY GEORGE M. STERNBERG, M.D.,
SURGEON U. S. A.

GENTLEMEN: It would have been far more satisfactory to you and to me if the subject of my address this evening could have been announced as "The Yellow Fever Germ." I need hardly say that nothing would have given me greater pleasure than, in the presence of the experts in the clinical and prophylactic management of yellow fever here assembled, to exhibit microscopic preparations and pure cultures of the specific infectious agent which I have been so long in search of. I shall show you presently upon the screen photo-micrographs of a variety of microörganisms which I have encountered in the course of my researches, some of which are hitherto undescribed species, and among them some which have specially engaged my attention as possible yellow fever germs. I shall also show you cultures and photo-micrographs of the micrococcus presented to me by Dr. Domingos Friere, of Brazil, as his microbe of yellow fever; of the tetragenus febris flavæ of Dr. Carlos Finlay, of Havana; and of the bacillus of Dr. Paul Gibier, of Paris.

But I must announce to you, in advance, that there is no satisfactory evidence that any one of these micro-organisms is the veritable infectious agent in the disease under consideration.

I at first hesitated to accept the invitation extended to me to address you on this occasion, inasmuch as my investigations have not yet led to any definite result, and as they are still in progress and will be continued in Havana during the present summer. But the importance of the occasion and the solicitation of my good friend Dr. Cochran, the efficient Health Officer of the State of Alabama, have induced me to come here for the purpose of making a brief statement relating to the present status of the investigation with which I am charged, and especially for the purpose of demonstrating to you the methods of research employed by bacteriologists in investigations of this nature.

I may say before going any further, that my faith in a living infectious agent as the specific cause of this disease is by no means diminished by my failure thus far to demonstrate the exact form and nature of this hypothetical "germ." The present state of knowledge with reference to the etiology of infectious diseases in general, and well-known facts relating to the origin and spread of yellow fever epidemics, fully justify such a belief. The *a priori* grounds for such faith I stated as long ago as 1873, in a paper published in *The American Journal of the Medical Sciences* (July, 1873); and the progress of knowledge since that date has all been in the direction of supporting this *a priori* reasoning. But yellow fever is by no means the only infectious disease in which satisfactory evidence of the existence of a living infectious agent is still wanting. In the eruptive fevers generally no demonstration has been made of the specific etiological agent—at least none which has been accepted by competent pathologists and bacteriologists. Again, in the infectious disease of cattle known as pleuro-pneumonia, notwithstanding very extended researches by competent investigators in various parts of the world, no satisfactory demonstration of the germ has been made. The same is true of hydrophobia, in which disease we are able to say with confidence the infectious agent is present in the brain and spinal cord of animals which succumb to rabies; this infectious agent is destroyed by a temperature which is fatal to known pathogenic microörganisms (65° C.), and by various germicide agents, yet all efforts to cultivate it or to demonstrate its presence in the infectious material by staining processes and microscopical examination have thus far been unsuccessful.

You are aware that my first effort to solve the etiology of yellow fever was made ten years ago. As a member of the Havana Yellow Fever Commission of the National Board of Health, I had an opportunity to make researches which, in advance of the effort, I fondly hoped might lead to demonstration alike creditable to American science and useful as a basis for preventive and curative measures in this pestilential malady, which has destroyed the lives of so many of our fellow-citizens, and has so largely interfered with the material progress of certain sections of the United States. I knew, from personal experience, the malignant nature of the disease, and the futility of the various modes of treatment which had been resorted to in the effort to combat it. It was, therefore, with the deepest interest as well as with strong hopes of success, that I went to an endemic focus of the disease to search for the yellow fever germ. The recent (1873) demonstration of the spirillum of relapsing fever in the blood of patients suffering from this disease, and the recognized facts relating to the etiology of anthrax, considered in connection with the current notions relating to the pathology of yellow fever, led me to hope that the discovery would prove an easy one. I was familiar with the most approved methods of mounting and staining microörganisms, and was provided with the best high-power objectives that could be procured, the one-twelfth and one-eighteenth homogeneous oil immersion objectives of Karl Zeiss, of Jena, Germany. Not only did I feel that I was equipped for the recognition of any micro-organism which might prove to be present in the blood, but I was prepared to photograph it, and thus to show to others what I might see in blood drawn from the circulation of yellow fever patients. You know the result of this investigation; "ninety-eight specimens from forty-one undoubted cases of yellow fever were carefully studied, and one hundred and five photographic negatives were made, which showed satisfactorily everything

demonstrable by the microscope." But no microörganism was discovered. I shall presently show you upon the screen a photo-micrograph of yellow fever blood, made in Havana at the time mentioned, so that you may judge of the performance of my Zeiss one-eighteenth inch objective, and have ocular evidence that no microorganism demonstrable by this magnificent lens was present in it. I may say here that my culture experiments, made in Havana last spring, in which blood taken from one of the cavities of the heart, as soon as possible after death, was introduced into various nutritive media, gave a like negative result.

Out of ten cases in which I made autopsies, in the military hospital at Havana, a development of microorganisms occurred in two only. In the exceptional cases I obtained a bacillus which subsequent researches showed to be identical with a bacillus constantly found in the alimentary canal of healthy persons—the *bacterium coli commune* of Escherich.

The absence of microörganisms from blood drawn from the finger during life, or from the heart after death, cannot, however, be accepted as evidence that there are no parasitic organisms anywhere in the tissues. The bacillus of typhoid fever, for example, is rarely found in the circulating fluid, although it must be transported in the blood current to the various organs in which foci of growth are found which contain numerous bacilli. Such foci are especially abundant in the spleen, but even in this organ many thin sections may be made before a single focus of development is encountered.

Having failed to find the yellow fever germ in the blood, we may still admit that, as in typhoid, it is perhaps only to be found in the organs principally involved in the morbid process. This reasoning has led me to give special attention to an examination of the liver and kidney, both by the culture method and by the examination of thin sections. Both methods have given me positive results, so far as the occasional presence of microörganisms is concerned, but both are in accord in failing to demonstrate the constant presence of any particular organism. In my culture experiments, made in Havana last year, the microörganism most frequently encountered was my bacillus *a*, already referred to as found in two out of ten cases in cultures from blood drawn from the heart. Naturally, I have given much attention to this bacillus, and it was only after an extended series of comparative experiments that I gave up the hope that it might be concerned in the etiology of the disease under consideration. These comparative experiments forced me to the conclusion that this is the same bacillus as was found by Emmerich in cholera cadavers at Naples, and that it corresponds with the *bacterium coli commune* of Escherich.

In my researches by the method of staining thin sections of the tissues hardened in alcohol, I have encountered several different microörganisms; but no one of these has been found in a series of cases. One, the bacillus of Lacerda and Babes, I have found only in material brought from Dr. Lacerda's laboratory in Brazil, and in two only out of nine cases represented by material from this source. In one of my Havana cases, in which the material was collected by my friend, Dr. Burgess, in 1887, a long bacillus was found in the kidney, for the most part in the glomeruli. In a case in which I made the autopsy in Havana last spring a micrococcus, grouped in fours, was found in the kidney.

Evidently, if any one of these microörganisms was found in a considerable series of cases, the fact would be decidedly significant, and would afford presumptive evidence that the parasitic organism found bore some relation to the morbid process. But, even if one and the same microörganism was found in every case, the final proof of its etiological import would depend upon its isolation in pure cultures, and the production of the characteristic phenomena of the disease in one of the lower animals, or, in the absence of a susceptible animal, in man himself.

The method of cultivation is by far the most reliable for the demonstration of microörganisms which will grow in our culture media, for isolated cocci or bacilli might easily escape observation when present in small numbers but would serve to start a culture. Thus the bacillus of typhoid fever, which, as stated, is not as a rule found in the blood of the general circulation, and is only found in the spleen in scattered clumps, may be obtained from this organ in pure cultures, almost without fail, by introducing a small quantity of splenic pulp into a suitable nutritive medium.

Moreover, this method enables us to differentiate microorganisms which look alike, and which by microscopic examination alone it would be impossible to distinguish one from another. This is a fact now well recognized by bacteriologists, but not generally appreciated by microscopists whose researches have been limited to the staining and mounting of sections.

Both methods require skill and practice in the execution and great caution in drawing conclusions, for there are a thousand traps lying in wait for the explorer, in this field of investigation. It is for this reason that pseudo-discoveries are so numerous.

Especial care is required in the microscopical examination of stained preparations of yellow fever tissues. One encounters in the urinary tubules, mingled with the débris of the desquamated epithelium, stained masses of various forms which often closely resemble cocci or bacilli. These I believe to be fragments of nuclear material. The same material is often massed in the urinary tubules in the form of plugs, which are deeply stained by the aniline dyes.

Again, fragmentation of the nuclei of cells still in position may give the impression of a cell containing cocci; and the karyiokinetic figures found in the cells, especially in the liver, often resemble bacilli so closely that it is difficult to convince any one not familiar with them that they are not microörganisms.

The "plasma cells" of Ehrlich, also, seem to have as their chief function the *rôle* of deluding amateur microscopists into the idea that they have made a discovery. They are often very abundant in the liver and in the kidney of yellow fever cases, and so closely resemble zoöglœa masses of micrococci that experienced pathologists have been deceived by them.

In addition to these objects which resemble microorganisms there are dangers from the post-mortem invasion of the tissues when the autopsy has been delayed beyond an hour or two, in the warm climates where yellow fever prevails; or even in the preserving medium, or during the process of staining.

My experiments made in 1883 showed that "exposure

to ninety-five per cent. alcohol for forty-eight hours did not kill the bacteria in broken-down beef-tea (old stock)," and pathologists are familiar with the picture presented by the post-mortem invasion of tissues which have been left in alcohol which was not strong enough to preserve them.

Finally, inasmuch as my culture experiments with material collected soon after death, from the liver and kidney, gave a positive result in a certain proportion of the cases, it is evident that the microörganism most frequently found by this method—my bacillus *a*—should occasionally be encountered in stained preparations.

The possibility remains that by some method of staining not hitherto employed, the specific infectious agent may yet be demonstrated in the tissues; but the fact that my culture experiments with material from the liver and kidney of ten cases failed to demonstrate any such specific microbe is opposed to this view. We may, of course, suppose that the yellow fever germ not only requires special methods, yet undiscovered, for its demonstration in the tissues, but that it will not grow in the culture media which I have employed in my researches. I would say in reply to this hypothesis that all known pathogenic microörganisms may be demonstrated by the staining methods employed, and that, inasmuch as the yellow fever germ appears to find a favorable nidus in filth beds external to the body, I have been inclined to believe that, like the bacillus of typhoid fever and cholera, it is not especially nice as to the character of the medium in which it may develop. However, this may be a mistaken idea, and I propose in my future researches to make use of various culture media not yet employed, and especially to make cultures from the tissues and the excreta in an atmosphere from which oxygen has been excluded; for it may be that, like the bacillus of malignant œdema and the bacillus of tetanus, the yellow fever microbe is anaërobic.

While, then, I admit that by some special method of staining, or by a modification of the culture methods heretofore employed, the specific infectious agent we are in search of, may yet be found in the tissues of yellow fever patients, I feel justified in saying that no such demonstration has yet been made. The negative results attending my researches in this direction have led me to turn my attention to the microörganisms present in the alimentary canal, for the possibility suggests itself that this may be after all the habitat of the deadly yellow fever microbe, which is capable of destroying life within two or three days, and that the phenomena of the disease are not directly due to its presence in the body, but result from the absorption of a poisonous ptomaine produced by it, as appears to be the case in cholera.

The famous English hygienist Parkes, from the consideration of evidence relating to the prevalence of yellow fever during a series of years among English troops stationed in Jamaica and elsewhere within the "yellow fever zone," in connection with the sanitary condition of their barracks, arrived at the conclusion that yellow fever is a "fecal disease," and there are many facts relating to the origin and extension of epidemics which seem to support this view—that is, the belief that the germ finds a proper nidus in fecal matter external to the body. If in yellow fever, as in cholera, the infectious agent is located in the alimentary canal of those who fall sick with the disease, we can readily understand how it is that new centres of infection are developed, when external conditions are favorable, in the localities where imported cases have occurred, or as a result of the introduction to such localities of fomites.

This view also accords with the demonstrated fact that yellow fever is not directly communicated by the sick to those in attendance upon them. Pathogenic germs which multiply in the intestine no more endanger those who are associated with the infected individual than the same microörganisms cultivated in a suitable medium in a test tube endanger the bacteriologist who is engaged in their study.

The possibility that the infectious agent in yellow fever may have its habitat in the alimentary canal, occurred to me several years ago, and I determined, in advance of my visit to Havana last spring, to give special attention to a bacteriological study of the intestinal contents.

It is well known that the excreta of healthy persons contain a vast number of microörganisms of various species, and that while some of these appear to be constant, others are occasional, and, we may say, accidental tenants of the human intestine, being introduced, no doubt, with the ingesta, and especially in drinking water.

Notwithstanding the researches of Brieger, of Bienstock, of Escherich, of Vignal, and others, this bacterial flora of the healthy intestine is still imperfectly known. The attempt, therefore, to explore this field for the purpose of finding a specific microbe in any particular disease, is attended with very great difficulties, unless, as in cholera, this specific microbe occupies the field to the exclusion of the ordinary bacteria found in the intestinal contents. Koch found his "comma-bacillus" almost in pure cultures in the characteristic rice-water discharges of cholera patients, and other bacteriologists, following his methods, have had no difficulty in verifying the presence of the same microörganism in cases of cholera occurring in various parts of the world. On the other hand, extended comparative researches, including my own investigations made in Havana and in Decatur, show that the "comma-bacillus," or rather spirillum, is not found in the alvine discharges of healthy persons, or in other diseases than cholera. If in yellow fever, as in cholera, there was a microörganism in pure cultures, or in relatively great abundance, capable of growing in the culture media which are suitable for the development of a majority of the known pathogenic organisms, I ought to be able, to-night, to exhibit to you cultures and photomicrographs of this microörganism. But my researches show that the microörganism which is by far the most abundant, and, so far as my investigations go, the only constant form found in the excreta of yellow fever cases, is the *bacterium coli commune* of Escherich, which is also the most constant and abundant form found in the excreta of healthy persons.

In Havana my cultures were made from material from the stomach and intestine of fatal cases obtained at the time of making the autopsy. My researches did not show that any of the microörganisms encountered was constantly present, with the exception of the *bacterium coli commune*—my bacillus *a*. Having excluded this bacillus by comparative researches, there was nothing to point to any one of the microörganisms present in my cultures as the probable infectious agent I was in search of.

The bacillus of Dr. Paul Gibier I only encountered in three cases out of ten, and in these it was not present in

very great abundance, compared with the colon-bacillus for example.

My time in Havana, limited by my orders, was too brief to enable me to make an exhaustive research. The epidemic in Florida and Alabama during the past summer gave me an opportunity to continue the investigation, and, at my request, I was directed to proceed to the infected district for this purpose. The presence of my friend Dr. Jerome Cochran, State Health Officer, at Decatur, decided me to locate my laboratory in that place, where I found abundant material for the researches I had in view. Having made a considerable number of autopsies in Havana, I determined while in Decatur to devote my attention especially to a bacteriological study of the alvine discharges collected during the different stages of the disease.

Evidently, if the infectious agent multiplies in the intestine, it should be found in the excreta during the earlier stages of the attack.

The cause must be present in advance of the development of the morbid phenomena which characterize the disease. But it is quite possible that during its later stages the etiological agent has perished, and, therefore, would not appear in cultures made from material obtained post-mortem.

While in Decatur, and after my return to Baltimore, I examined by bacteriological methods—Esmarch tubes—the excreta of 39 cases of yellow fever, and for comparison of 9 convalescents and of 19 healthy individuals. A detailed account of the results reached will be given in my final report. As was to have been expected, I have encountered a variety of microörganism. Many of these I have isolated in pure cultures, and the biological and pathogenic characters of several have been carefully studied by cultivation in various media and by inoculation experiments in the lower animals. It would be premature for me to attempt to give you the results of these researches even if time permitted me to do so. But I may repeat what I said at the outset that the germ of yellow fever has not yet been demonstrated. It is possible, however, that one or the other of the microörganisms which I have isolated is the long-sought germ, although I have no satisfactory evidence upon which to base a claim that this is the case.

My attention has been especially directed to the liquefying organisms found in the excreta of the 39 cases examined. In a majority of these cases the presence of liquefying bacilli was demonstrated, but liquefying colonies were not numerous as compared with the non-liquefying, among which the colon-bacillus of Escherich was by far the most abundant. In a series of Esmarch tubes No. 1 would show numerous liquefying centres, usually within twenty-four hours, very often No. 2 would contain a few liquefying colonies, while, as a rule, No. 3, although containing numerous isolated colonies of the colon-bacillus, did not contain any liquefying colonies. Further, I found that several different liquefying organisms were present in different cases, or were associated in the same case. I shall presently show you cultures and photomicrographs of these liquefying bacilli. The one most frequently present, my bacillus *o*, I have since found in cultures from another source, and am obliged to exclude it as the possible specific etiological agent of yellow fever. It has also been isolated by Dr. Booker, of Baltimore, from the discharges of one or more infants suffering from summer diarrhœa. The bacillus of Gibier I have only isolated from three cases, and in these it was not present in considerable numbers. I have made extensive experiments upon the lower animals, which show that this bacillus has interesting pathogenic properties, but give no special support to the view that it is the specific germ of yellow fever. I have never observed in my cultures the black pigment which, according to Gibier, is produced during the development of this bacillus, and am at a loss to understand this discrepancy in our observations.

So far as the pigment in black vomit is concerned, I have no doubt that it is of hæmic origin. I have never failed to demonstrate, by a microscopic examination, the abundant presence of red blood-corpuscles in the numerous specimens of black vomit which I have examined. The little black flocculi are, in fact, made up of agglomerated corpuscles which have lost their pigment and appear as pale disks, often more or less swollen and distorted; while the brownish pigment, which has been changed by the acid secretions of the stomach, remains in their vicinity in the form of granules or amorphous masses. The idea that there is something specific about this pigment, or that it is the secretion of a specific microbe, as has been maintained by Freire and by Gibier, appears to me to be untenable. In a majority of the non-fatal cases of yellow fever and in a certain proportion of the fatal cases there is no passive hemorrhage into the stomach, and consequently no black vomit, yet these cases must result from the action of the same etiological agent as those in which this symptom is present.

I have found by experiment that the bacillus of Gibier, the micrococcus of Freire, and the tetragenus of Finlay, all grow after being exposed for an hour to a temperature of $-15°$ C. (5° F.). Exposure outside of the laboratory in Baltimore for five days in the month of January failed also to destroy the vitality of these microörganisms, although the temperature, during the greater part of the time at least, was below the freezing-point.

Having thus given you a brief account of the present status of the investigation in which I am engaged I propose to devote the remainder of the time at my disposal to a practical demonstration of the methods of research employed, and to an exhibition upon the screen of the various microörganisms to which I have referred.

ACUTE PANCREATITIS.

A Consideration of Pancreatic Hemorrhage, Hemorrhagic, Suppurative, and Gangrenous Pancreatitis, and of Disseminated Fat-necrosis.

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(Continued from page 230.)

SUPPURATIVE PANCREATITIS.

IN order to more fully appreciate the relation which hemorrhagic pancreatitis may bear to pancreatic inflammation and hemorrhage, it becomes necessary to consider the evidence in favor of other varieties of acute pancreatitis. Although the authorities of the present

day make but little mention of a suppurative inflammation, Lieutaud[1] in the last century alludes to cases of pancreatic abscess reported by Bartholinus, Tulpius, Aubert, and Patin.

To these may be added those of Riolanus, Bons, and Gautier, referred to by Ancelet.[2] Clässen[3] states that Blanchard, in 1688, described the occurrence of small, purulent points on the surface of the pancreas of a child who died of smallpox. Also that Tonnellé found a suppurating pancreas in two cases of puerperal fever. But the cases thus referred to are almost invariably of but little value for purposes of comparison. Döring,[4] for instance, found the enlarged and indurated pancreas connected with an abscess in the mesentery of the transverse colon, which held some four ounces of offensive, yellow pus, apparently proceeding from the pancreas. But the evidence is wanting to show that the pancreas was the source of the disease.

Portal[5] saw the pancreas soaked in pus in the body of a man who died after a violent attack (of gout?). Again,[6] he found the contents of the abscess often enclosed, as in a pocket, in a membranous sac formed by the cellular tissue which covers the pancreas. He declares that he has seen more than a quart (*deux livres*) thus enclosed. Here again the question may be raised as to the nature of the abscess and its relation to the pancreas. His mention[7] is worthy of note, of the man who died after extirpation of the testicle and ligature of the spermatic cord. A large quantity of pus was found in the cord, and a considerable abscess around the pancreas.

It is supplemented by the case reported by Moore,[8] of a young man who was seized with a sudden, abdominal pain which in the course of twenty-four hours became worse, and fixed in the right iliac fossa. There were vomiting, constipation, and chills. For several days the patient was not confined to his bed, but he died on the nineteenth day. The diagnosis was typhlitis. The perforated vermiform appendix led into an abscess which had penetrated the iliac muscle and communicated with the cæcum.

There were one large and several small abscesses in the pancreas. The two main veins were filled with thrombi; there was a portal thrombosis continued to the liver, and a parietal thrombosis of the vena cava.

There were numerous small abscesses in the brain.

The case reported by Percival,[9] as of pancreatic abscess, must be regarded as of somewhat doubtful nature. A man of middle-age was sick for three months with jaundice, bilious vomit, and a hard epigastric tumor.

Blood and finally fetid pus were discharged from the bowels. Eventually anasarca occurred. The epigastric tumor proved to be the greatly enlarged pancreas, which was scirrhous, and contained a considerable abscess.

The common duct was impervious from the pancreatic pressure, and the liver was "much diseased."

Andral[10] found two small abscesses in the middle of the pancreas.

[1] Op. cit, i. 244.
[2] Maladies du Pancreas, 1804, 19, 20.
[3] Op. cit., 64.
[4] Altenburger Jour., 1817. Clässen, op. cit., 264.
[5] Anat. Med., 1803, v. 352.
[6] Op. cit., 353.
[7] Op. cit., 353.
[8] Trans. Lond. Path. Soc., 1882, xxxiii. 186.
[9] Trans. Asso. K. and Q. Coll. Phy., Ireland, 1818, ii. 132.
[10] Précis d' Anat Path., 1829, ii. 582.

In order to determine the relative frequency of suppurative pancreatitis, the conditions of its occurrence, its symptomatology and results, the following thirty-two cases have been collected.

Case XXXIV.—Male, aged twenty. General abdominal pain, nausea, sense of distention and weight in stomach after eating. Tendency to purge. Dropsy. Pancreas a good deal enlarged, and contained a considerable quantity of pus.—Baillie. *Morbid Anat.*, 1833, 221, 223.

Case XXXV.—Male, adult. Feeble, scrofulous, phlegmatic. Dull epigastric pain for several weeks, then becoming violent, with nausea, offensive, loose stools, quick pulse, dry skin, sensitive epigastrium. Temporary improvement. Return of diarrhœa, fever, emaciation, weakness. Death at end of more than four months. Pancreas in part hardened, in part full of pus. The pus had escaped into the abdomen. Other organs normal.—Perle. *De pancreate ejusque morbis.* Diss. Inaug., Berl., 1837, 33.

Case XXXVI.—Adult. Corpulent, apparently much addicted to food and drink. Great epigastric pain, distention after meals, continued dull pain extending into both hypochondria above navel, relieved by purgatives, vomiting, constipation. Progressive emaciation and debility. Stools finally fetid, bloody. Temporary improvement, hectic, and death after nine months of illness and four in house. Intestinal obstruction suspected. Enlarged pancreas formed a purulent mass without healthy structure. Its extremity had ulcerated into the duodenum at lower curvature, through which pus must have passed into the intestine. Liver enlarged, spleen normal.—Fletcher. *Prov. Med. and Surg. Journ.*, Lond., 1848, 20.

Case XXXVII.—Male, aged forty-one. Indolent; large eater, fond of sweets. For some years attacks of bilious dyspepsia. Last attack seven months ago; did not recover as usual. Emaciated, feeble, dispirited, restless; frequent vomiting, eventually of thin, ropy mucus. Sensation of distended stomach and bowels, in which there was much gas. No appetite, no thirst, sluggish bowels, consistent stools, unmixed with bile and very fetid. No pain nor sensitiveness, nor tumor. Left abdomen dull; tympany in right abdomen and over stomach.

After two months of slight downward tendency, frequent chills and fever. Region between navel, lower border of stomach, and left flank dull, doughy, inelastic, not sensitive. After two weeks, chills ceased and a resistant sore spot appeared above navel and at the left. Œdema of feet and legs. Death after eleven months. Pancreas much enlarged, envelopes thickened. Entire gland formed a trabeculated cavity filled with creamy pus and a few cheesy masses about the size of a bean. The duodenum contiguous to the pancreas broke into pultaceous shreds, even on cautious handling. Spleen enlarged one-third. Despite extreme emaciation, a half-inch of fat in the abdominal wall.—Kilgour. *London Journal of Medicine*, 1850, ii. 1052.

Case XXXVIII.—Female, aged fifty-four. Robust. Some months ago, an attack of disturbed digestion with loss of appetite, flesh and strength, chilliness, morning belching, thin, viscid, liquid vomit. Recovery. Recurrence of antecedent symptoms, with deep-seated, dull pain, pyrosis, slight jaundice, swollen epigastrium. Alternate diarrhœa and constipation; stools white, slimy, not offensive. Gradual loss of flesh and strength. Death. Pancreas wholly suppurating. Spleen natural. Gall-bladder full of bile.—Riboli. *Gazz. Sard.*, 1858. Schmidt's *Jahrb.*, 1859, cii. 177.

Case XXXIX.—Female, aged sixty-four. Upper part of pancreas a dense, gray callus, in which a few remains of gland substance and round cavities, up to the size of peas, filled with thick white fluid; also several small pus cavities. In the lower part of the pancreas an abscess as large as a walnut. The duct, narrowed at the mouth, gradually widened toward the tail. Posterior

wall of the stomach firmly adherent to pancreas, and contained a submucous abscess.—Klob. *Œster. Zeitschr. f. pr. Heilkde.*, 1860, vi. 529.

CASE XL.—Male, aged twenty-three. Well. Severe gastric pain without cause, loss of appetite, sluggish stools, slight fever, sensitive epigastrium, rapid emaciation. In the course of a fortnight, violent paroxysms of stabbing pain spreading laterally from the epigastrium, which was swollen, tense, and tympanitic. Paroxysms attended with transient collapse. In the fourth week, a feculent diarrhœa, which suddenly became thin, profuse, watery, with nausea and bilious vomit. After decided improvement, fever and diarrhœa returned in the seventh week, and the abdomen became much distended. The tympany increased; there were occasional hiccough, progressive weakness, extreme emaciation, and death on the sixty-fifth day. Pancreas large, firm, yellowish-red. Sclerosis of peripancreatic tissue. On section several abscesses, some larger than a bean, at times communicating by sinuous tracts, two of which opened into the adherent posterior wall of the stomach, and two into the duodenum, Spleen of normal size, firm, pale red. Splenic vein obstructed by a reddish-yellow thrombus, in front of which the vein-wall was shreddy and its cavity communicated with a large abscess. A lumbricus lay half in the vein and half in the abscess, and in a sinuous passage leading from it to the duodenum. An abscess as large as a hen's egg in the left lobe of the liver. Fibrinous peritonitis, especially in upper abdomen.—Drasche. *Ber. d. k. k. Kranhenhauses. Rud.-Stift in Wien*, 1868, 301.

CASE XLI.—Male, aged thirty. Intemperate, much exposed when drunk, and then had dyspnœa. Had had two attacks of intermittent fever. Chronic cough for two years. Under treatment for syphilis. After two days of constipation, slight epigastric pain and vomiting, thirst, hot skin, no appetite. The bowels were moved freely. A chill occurred, followed by fever, chills, and diarrhœa toward the end of the week, then slight jaundice, persistent chills, and diarrhæa, and death in collapse on the twelfth day. Pancreas firmly adherent, On section of the enlarged head an abscess opened, the walls thick; contents, an ounce of pus. The dilated duct in the head held several calculi. Spleen weighed eleven and one-half ounces. Lungs phthisical, and containing a central chocolate-colored nodule, from which pus escaped.—Roddick. *Canada. Med. Journ.*, 1869, v. 385.

CASE XLII.—Male, aged twenty-five. Catarrhal symptoms and great debility for two weeks. For two days gastric irritability, nausea, constipation. Then incessant hiccough, epigastrium distended, tympanitic, no pain, no tenderness, constant copious vomiting of thin, brownish, stringy fluid, no jaundice, increasing loss of flesh and strength. Death from exhaustion in six days from the onset of the symptoms of gastric disturbance. Diagnosis, ileus. Pancreas large, head indurated, mortar-like. Duodenum closed by pancreatic pressure, coats thickened. Small omental hemorrhages. Distended gall-bladder.—Nathan. *Med. Times and Gaz.*, 1870, ii. 238.

CASE XLIII.—Male. Pancreas closely connected with neighboring organs. Splenic end contained a small abscess, with thick, greenish-yellow pus. Several small lymphatic glands near duodenal end contained similar pus. Abscess in the diaphragm above the spleen.—Smith. *Dublin Journ. Med. Sci.*, 1870, 201.

CASE XLIV.—Male, aged thirty. Continued fever, severe abdominal pain at level of spleen, which was supposed to contain an abscess; death in a month. Abscess of pancreas, surrounded with adhesions.—Frison. *Marseille Méd.*, 1875, xii. 257.

CASE XLV.—Male, aged twenty-eight. Delicate, suffered from hard work and extra hours. Loss of appetite, epigastric pain, jaundice, no fever. In third month, pain in right hypochondrium and shoulder; swollen abdomen, testicles, and feet. Sudden increase of appetite and thirst, abundant saccharine urine. In the tenth month intense jaundice, extreme emaciation, great weakness, lower abdomen dull, upper abdomen distended and tympanitic. Diabetes persisted, return of fever. Death in coma, at end of ten and a half months. Pancreas enlarged threefold, indurated, infiltrated with pus. A large collection of thick, yellow pus in the tail. Numerous small abscesses in the left lobe of the liver. Enormous dilatation of the common bile-duct. Spleen not enlarged.—Frison. Loc. cit.

CASE XLVI.—Male, aged forty. An attack of severe abdominal pain, without cause, followed by tense tympanitic abdomen, which was sensitive. Frequent regurgitation and bilious vomit, constipation, high fever. Death in the course of a week. Pancreas enlarged threefold, reddened, consistency increased, studded with hundreds of abscesses up to the size of beans, many projecting, had burst into abdomen. General fibrino-purulent peritonitis, especially in the upper abdomen.—Friedreich. *Zeimssen's Handb. d. sp. Path. u. Ther.*, 1875, vii. 2. 243.

CASE XLVII.—Male. Strong, temperate. Dislike for fatty food. Sick headaches, left inguinal hernia. After a month of cough and dyspnœa, six months ago, came diarrhœa, wasting, loss of appetite, and jaundice. After seven weeks, a month of considerable œdema. For ten days, epigastric and interscapular pain. Death from exhaustion, after five months of abdominal symptoms. Head of pancreas enlarged. A diffuse abscess followed the course of the ducts and opened into the lesser mental cavity, which was full of pus, and communicated with the duodenum. Fibrino-serous peritonitis. Thrombosis of femoral vein. Cheesy apices, cirrhotic liver, distended bile-ducts.—*St. George's Hosp. Rep.*, 1877-'78 '79, ix. 95.

CASE XLVIII.—Female, aged twenty-nine. Fifteen months ago, pain in region of liver, increasing and shooting, no nausea, poor appetite, bowels regular, feces dark. Jaundice for two weeks, tenderness over gall-bladder, cough, disturbed sleep. After two weeks, apparent convalescence for four days, then return of pain over gall-bladder, nausea, bilious vomit, jaundice, restless, rapid breathing, unconsciousness; death in thirty-six hours. The enlarged and hard pancreas contained an abscess. A round worm, seven inches long, lay partly in the duodenum, partly in duct. Large fatty heart, pale kidneys. Large, pale, soft liver.—Shea. *Lancet*, 1881, ii. 791.

CASE XLIX.—Male, aged fifty-eight. A year ago, loud belching, abdominal fulness, no sensitiveness. Nine months ago pale, sensitive epigastrium; black, tarry stools. Recovered from these symptoms, but was pale and emaciated. After five months, another attack of intense gastric disturbance, lasting a fortnight. Then improvement and gain in weight. After an error in diet, vomiting and severe abdominal pain. Swollen, sensitive abdomen. Pains in both hypochondria. After four days, increasing meteorism, fever, return of vomit, sleepless, progressive weakness, collapse, and death on the eleventh day. Pancreas swollen, anterior surface dotted with numerous yellowish-white prominences up to the size of hemp-seed, alone and in groups, forming cavities with smooth walls and pap-like contents. A group of these gray, gangrenous, covered with shreddy peritoneum. The contents of these cavities were partly granular corpuscles and detritus. The smallest had a wall of small-celled infiltration, similar foci on sections, also narrow and broad bands, and diffused growth of fat tissue. Similar prominences in the transverse mesocolon and mesentery; in the former a circumscribed necrosis with floating shreds and fresh peritonitic adhesions. Abundant sub-peritoneal fat.—Fränkel. *Zeitschr. f. klin. Med.*, 1882, iv. 277.

CASE L.—Male, aged twenty-five. Obscure symptoms

of peritonitis. Pancreas extensively destroyed by suppuration. The remaining splenic end, infiltrated with pus, showed a ragged surface, forming part of the wall of an abscess, bounded below by the lowest four inches of the ileum, and above by the stomach, spleen, abdominal wall, and coils of intestine.—Moore. *Trans. Lond. Path. Soc.*, 1882, xxxiii. 186.

CASE LI.—Male, aged seventy-four. Head of the pancreas, partly broken down, formed one wall of an abscess; elsewhere bounded by peritoneal adhesions.—Moore. Loc. cit.

CASE LII.—Male, aged thirty-five. Slight jaundice. A large part of the head of the pancreas destroyed by an abscess bounded by pancreas, duodenum, and under surface of stomach. The dilated common duct communicated with the abscess, and the latter opened into the peritoneal cavity and eroded the pancreatico-duodenal artery.—Moore. Loc. cit.

CASE LIII.—Male, aged forty-two. Intemperate, exposed to hardship. For some weeks increasing debility. One attack of vomiting, marked ascites. For the next twenty-five days, dull, listless, without appetite, fever, pain. Ill-defined epigastric tumor, not sensitive. Abdomen tapped, refilled in eighteen hours. In the head of the pancreas an abscess as large as an orange. The rest of the gland dense, containing numerous pus pockets. Ducts dilated. The large abscess opened into a pus-cavity, bounded by posterior wall of stomach, pancreas, duodenum, transverse colon, and peritoneum. Portal vein filled with a puriform thrombus extending into hepatic, splenic, and mesenteric veins. Slight cirrhosis, small, soft spleen. Recent peritonitis, bronzed skin.—Musser. *Amer. Journ. Med. Sciences*, 1886, N. S., xci. 449.

CASE LIV.—Male, aged twenty. Ate a probably putrid sausage; sudden nausea, violent vomiting, prostration, alternating heat and cold, severe headache. The next day, chill, cutting pains in abdomen, diarrhœa. On the fifth day, high fever, meteorism, dilated gastric and ileo-cæcal regions. A week later, jaundice. After five days the liver became enlarged, painful, and sensitive; the abdomen eventually distended and tense, the stools thin and pap-like; urine frequently contained peptones; one or two daily chills, with atypical and abrupt changes of temperature. Eventually repeated watery vomit, hiccough; death in collapse, at the end of the sixth week. Head of the pancreas contained an abscess as large as a hen's egg, filled with greenish-yellow pus. The greatly enlarged liver agglutinated to the diaphragm, anterior abdominal wall, and stomach; numerous abscesses present, the largest the size of a hen's egg; also dark violet nodules. Vena portæ almost obstructed by a brownish-red thrombus continued into the splenic vein. Behind the pancreatic abscess the portal vein wholly obstructed, the thrombus reddish-gray, in a state of puriform softening. Spleen six by three and a half inches; pulp not readily scraped away, dense, brownish-red. Recent fibrino-serous peritonitis.—Bamberger. *Wiener klin. Woch.*, 1888, xxxiii. *Allg. med. Centr. Zeit.*, 1888, lvii., 1870, 1886.

CASE LV.—Female, aged thirty-nine. Intemperate. Has suffered for a year or two from poor appetite, distress after eating, pain in the stomach, constipation. Sudden epigastric pain, vomiting, constipation; in the course of a few days, after an error in diet, the pain became intense, accompanied with fever. There were constant hiccough and vomiting. The abdomen became swollen and the epigastrium sensitive. The constipation persisted, and intestinal obstruction was suspected. Six days before death, after indulging in alcohol, his symptoms became aggravated, and death occurred on the forty-eighth day. The head of the pancreas contained a trabeculated cavity with green, shreddy walls, which communicated with the parapancreatic fat tissue; a branch of the duct with green and friable walls opened into the cavity. In the fat-tissue at the splenic end of the pancreas was a cavity containing a dirty-green fluid. Multiple nodules of fat-necrosis are present; also peritoneal adhesions between the stomach and transverse colon in the omental bursa. No general peritonitis. Nothing abnormal in the portal vein or its branches.—*Mass. Gen. Hospital Records* and MSS. Notes, 1888, v. p. 131.

They are twenty-two in number. One was of recent occurrence in Boston, for the notes of which I am indebted to Drs. Sears, Thompson, Jones, and Whitney.

The more detailed history of Case LV. is as follows: The patient was thirty-nine years of age, rather fat, intemperate. For a year or two before her fatal illness she had suffered more or less from poor appetite, distress after eating, wind in the stomach, and costiveness.

She was seized with sudden epigastric pain, without known cause, followed by vomiting, and the bowels were constipated. On the following day the pain became worse, but was somewhat relieved after vomiting. The next day, after a dinner of roast goose and cabbage, the pain became much aggravated. It was intense on the fourth day, and there were constant hiccough and vomiting. The epigastrium was sensitive and the abdomen swollen. Pulse 120; temperature 103.4° F. She remained in this condition for several days without any movement of the bowels, and intestinal obstruction was suspected. Castor oil finally produced a dejection which was followed by a lowering of the pulse and temperature.

For nearly a fortnight she was not seen by a physician, and she was then admitted to St. Monica's Home, where she remained two weeks. During her stay she was dull and stupid, suffered from moderate, epigastric pain and sensitiveness, nausea and vomiting, and inability to eat solid food. The skin was not hot to the touch. Pulse 80. Her bowels were kept open by laxatives or enemata. There was a trace of albumin in the urine. The abdomen was full and rounded, and nothing abnormal was discovered on palpation. During the latter part of her stay she was able to sit up daily for a short time. She left the home without the knowledge of the physician, walked some distance, and was supposed to have drunk to excess.

Three days later she was seen by Dr. Sears, who found her suffering from severe pain in the right hypochondrium and epigastrium, with marked prostration. Her thirst was intense, but she immediately vomited everything swallowed. There was constant expectoration of thick, frothy mucus. Pulse 120; temperature 99.4° F. The abdomen was distended, the walls rigid. There was especial prominence of the epigastrium and right hypochondrium. This condition persisted during the three following days at the end of which she was taken to the Massachusetts General Hospital, where she died in the course of a few hours, at the end of the seventh week of her illness.

Dr. Whitney, who made the post-mortem examination, found the pancreas of normal size and density, in general of an opaque-gray color.

At the lower part of the head was a trabeculated cavity with dirty green, shreddy walls and containing cheesy, necrotic material. A large branch of the duct, with a ragged edge, opened directly into this cavity. Its wall near the cavity was green and soft. The main duct was intact, but contained near its outlet a small quantity of dirty brown, viscid fluid. The parapancreatic fat-tissue formed a part of the wall of the cavity above mentioned. Near the splenic end of the pancreas was a hole in the fat-tissue as large as a walnut and containing a dirty green fluid. Elsewhere in the neighboring fat-tissue, and in that of the mesentery, meso-colon, and posterior abdominal wall were numerous opaque-white, pap-like nodules from the size of a pinhead to that of a

pea. They were at times aggregated in clumps; the contents could be squeezed out. The smallest nodules were frequently surmounted by an injected border.

There was nothing abnormal in the portal vein or its immediate radicles. The liver was in a condition of brown atrophy, and there were minute, pale yellow calculi in the gall-bladder and common duct. There was no evidence of a general peritonitis, but on cutting through the meso-colon the stomach and colon were found slightly adherent. The microscopic examination of the fat-tissue showed characteristic, necrotic patches with a margin of round-celled infiltration. Also occasional small abscesses and more diffused infiltrations of leucocytes.

In addition, occasional, circumscribed, round spots were seen, composed of more or less elongated and flat cells, enclosed within a fibrous border. The cells varied in size, some being considerably larger than fat cells and containing several nuclei, while the smallest had a diameter four times that of a red blood-corpuscle. These patches suggested a lymph vessel plugged with desquamated and œdematous endothelium.

Dr. H. Jackson, under the supervision of Dr. Ernst, made a bacteriological analysis of the necrotic fat tissue from the above case. From Dr. Ernst's report it appears that four varieties of bacteria were isolated:

1. A liquefying, fluorescent organism, which proved to be a fine, short rod, half the size of the bacillus of tuberculosis.

2. An organism closely resembling the staphylococcus pyogenes citreus, both in the manner of its growth and in its microscopical appearances.

3. Very short, rather thin, non-liquefying rods, which formed thin, grayish, almost translucent and much wrinkled pellicles on the surface of the gelatine and agar-agar, around the mouth of the needle track.

4. The only organism found in large numbers. The cultures grew as finely beaded colonies along the needle track, with a flat, pearl-gray top extending two or three millimetres over the surface of the nutrient material. Microscopic examination showed the organism to be composed of very short, thick rods, resembling somewhat the appearances found in one or two of the sections of the necrotic tissue. It did not liquefy the gelatine.

Of twenty-one patients, seventeen were males and four were females; all were adults, whenever ages were mentioned, and in eighteen cases the age was given as follows:

Years of age.	Number of cases.
From 20–52	3
" 25–30	4
" 30–35	2
" 35–40	2
" 40–45	3
" 45–50	0
" 50–55	1
" 55–60	1
" 60–65	1
" 65–74	1

Previous attacks of indigestion of greater or less frequency and severity were present in about one-fourth of the cases. These attacks were usually regarded as gastric or bilious. One patient suffered from sick-headache, while another was subject to diarrhœa during his drinking bouts. Three were distinctly intemperate, two might be regarded as gluttonous, and one was exposed to hard work and extra hours.

The immediate attack was precipitated in two instances by errors in diet, in the one case a probably putrid sausage having been eaten. The attack was greatly aggravated in a third case by a dinner of roast goose and cabbage. Two weeks of catarrhal symptoms with great debility were the antecedents of another case.

A striking feature in the history of these cases of suppurative pancreatitis is the tendency of this affection to become chronic. Of fourteen cases, six were fatal in the first month, three during the second month, and five at various periods between four and eleven months. Death might take place at the end of the first week and even the more chronic cases often began with distinctly acute symptoms.

It is, therefore, desirable in the consideration of this series of cases to group them with particular reference to the rapidity of their course.

The cases of acute, suppurative pancreatitis usually began suddenly with severe, generally intense gastric, epigastric, or abdominal pain, vomiting, and sometimes great prostration. The vomiting might be incessant and distressing, or it might give temporary relief to the pain. The ejected fluid was sometimes stringy and brown. The bowels were usually constipated, although diarrhœa might occur within the first twenty-four hours. This latter symptom was not infrequent at a later date of the disease.

Fever, usually slight, was the next conspicuous symptom, being manifested about the third day. At the same time the upper abdomen, especially the epigastrium, was likely to become distended, tympanitic, and sensitive. Hiccough, sometimes quite obstinate, was not infrequent at this stage, and occasional chills were to be met with. The abdomen, in general, then became moderately swollen, tense, and tympanitic.

With the violent onset and persistence of these symptoms death might occur, perhaps in the course of a week or more.[1] The pancreas then was markedly enlarged, reddened, and studded with hundreds of small abscesses, many of which had burst into the peritoneum. The associated fibrino-purulent peritonitis was most marked in the upper abdomen. In the second case,[2] where death resulted in eleven days, the attack was apparently recurrent in a corpulent person who had suffered for a year from symptoms which might be attributed to pancreatic disease. There were found in the pancreas numerous small, yellowish-white prominences, alone and in groups, with soft, pap-like contents. They were present on section as well as superficially. The contents were fatty-degenerated cells and detritus. The walls of the smallest cavities were infiltrated with round cells while those of the others were smooth. A group of these prominences were grayish discolored, gangrenous, the superficial peritoneum being perforated and shreddy. Similar nodules were found in the mesentery and in the transverse meso-colon. In the latter was a circumscribed necrosis with floating shreds and fresh, peritonitic adhesions. The pancreas was irregularly traversed by narrow and broad bands and by a diffused development of fat-tissue. Not only does the clinical history of this case suggest a recurrent and finally fatal attack, but the pancreatic lesions also point to a long-standing process. Fibrous bands, fatty-degenerated cells and smooth-walled cavities filled with

[1] Case XLVI. [2] Case XLIX.

detritus favor this view. The description of these nodules suggests that many of them were probably foci of fat-necrosis, with gangrenous sloughing of the superjacent peritoneum.

An acute suppurative pancreatitis, however, very rarely terminates at this early date. The symptoms already described may persist for three or four weeks, with progressive emaciation and debility, and death occur from exhaustion. Under such circumstances the single abscess has been found surrounded with adhesions.

In another series of cases, beginning equally violently, there may be frequent chills and irregular, atypical, often high, fever, the maximum temperature being 105.8°.

Slight jaundice may be associated. The pains extend into the hypochondria and may spread from this point downward.

The liver, perhaps the spleen, may be palpably enlarged—the symptoms are conspicuously those of blood-poisoning, and the patient dies collapsed in the sixth or seventh week. An abscess as large as large as a hen's egg, filled with greenish-yellow pus, may then be found in the pancreas. Also a pyelophlebitis apparently the result of the pancreatic abscess and associated with multiple abscesses in the liver, and acute peritonitis.[1] Death at the end of seven weeks may result from the extension of the pancreatic abscess to the parapancreatic fat-tissue, with the production of multiple nodules of fat-necrosis.[2] In this case the symptoms of epigastric pain, vomiting, constipation, and swelling were interrupted by a period of several weeks of comparative comfort to be followed by marked prostration, incessant vomiting, severe epigastric pain, and fever.

Another event in the history of acute suppurative pancreatitis, found in the course of the third or fourth week, is the tense and swollen, painful, and sensitive upper abdomen which follows the pain, vomiting, constipation, and fever. A diarrhœa then becomes conspicuous, perhaps preceded by violent paroxysms of lancinating pain shooting laterally in the epigastrium, producing temporary collapse.

The loose stools may be thin, yellow, and feculent at the outset and then become profuse and watery. This symptom may then subside, with a lowering of the fever and a general improvement, to recur after a few weeks with fever and abdominal distention, progressive emaciation, and increasing weakness, ending in death in the tenth week.

Several small abscesses have then been found in the enlarged and firm pancreas, with sclerosed peripancreatic tissue. Communicating sinuses unite these abscesses and open into the adherent stomach and duodenum. A splenetic thrombo-phlebitis and a hepatic abscess may be associated, also a fibrinous peritonitis especially marked in the upper abdomen.[3]

The early symptoms may be less severe and the disease be announced by progressing weakness and emaciation. Loss of appetite, slight jaundice, perhaps diarrhœa, may occur. There may be neither fever nor pain, or there may be obscure symptoms of peritonitis.

Finally, anasarca or ascites becomes apparent, and death occurs from exhaustion, perhaps at the end of five months. The pancreas may then contain a diffused abscess, following the course of the ducts and opening into the cavity of the lesser omentum, which was filled with pus, and in its turn emptying into the duodenum through a sinus in the mesentery. these conditions being associated with a fibrino-serous peritonitis. The pancreatic abscess may extend at an earlier date even to the omental cavity, thus forming a great pus-cavity extending as low as the lowermost coils of the ileum, and walled in by adherent intestines and stomach. The greater part of the pancreas may be destroyed. The common duct may open abruptly into the abscess of the pancreas, and leave it at the hepatic end. There may be an associated thrombosis of the portal vein continued into its primary sources, and the pancreatico-duodenal artery may be eroded, with hemorrhage into the cavity of the abscess. A recent peritonitis may be associated, and in one of these somewhat protracted cases with extension to the omental cavity, a bronzed skin was present.

Finally, there are the most chronic cases, which extended over a period of nearly a year. As a rule, no severe pain occurs at the outset, but the patient gradually becomes weak and thin, vomiting may be frequent, and a sense of distention of the stomach after meals or of epigastric pain be complained of. There may be little or no fever, or periods when chills and fever occur. The stools may be consistent, not colored with bile, and very fetid, or later they may be very offensive and mixed with blood. There may be a free communication between the pancreatic abscess and the duodenum, or the latter may break into pultaceous shreds when handled. The entire pancreas may be converted into a trabeculated cavity filled with creamy pus and cheesy masses, or it may be indurated and infiltrated with pus. In one of these protracted cases[1] diabetes appeared after the third month.

Noteworthy in these cases of suppurative pancreatitis is the rarity with which a circumscribed tumor is to be found. A swollen, tympanitic epigastrium is the rule, and very rarely a circumscribed resistant spot was to be felt above the navel, to the left of the median line.

Jaundice occurred in less than one-fourth of the cases. It was then usually slight. Its intensity in one case was connected with abscesses in the liver and dilated bile-ducts.

Another fact of considerable importance is the usually small size of the spleen. The rule was, that no enlargement was noticeable even in those cases in which the thrombotic obstruction of the splenic or portal vein was recorded. The small spleen was usually of normal density.

From the above consideration it is evident that there are cases, few in number, of acute suppurative pancreatitis, which run a course similar to that described in connection with hemorrhagic inflammation. They may begin with equal suddenness, present the same grouping of symptoms, but are not so early fatal. They are more rarely associated with evidences of fat-necrosis, which were present in but two instances.

Although Klebs[2] regarded pancreatic abscesses, not arising from a peripancreatitis or from suppurating cysts, as of doubtful existence, it is apparent that this view is opposed by the evidence here recorded. It is also evident that the extension of an abscess from the neighbor-

[1] Case LIV. [2] Case LV.
[3] Case XL.

[1] Case XLV. [2] P. 21.

ing lymph-glands to the pancreas is of extreme rarity. The only evidence in favor of this view is that offered by Portal,[1] and in the case[2] reported by Smith. The possibility that a pancreatic abscess may be due to inflammation of the appendix is evident from Moore's case,[3] although the connection between the two may have been through a mesenteric thrombo-phlebitis, arterial embolism, or through the coexistence of acute pancreatitis and appendicular inflammation.

The possibility that a pancreatic inflammation may be excited by the passage of a lumbricus into the pancreatic duct is admitted in connection with the appearances in Case XLVIII. It is still more probable, however, that the worm entered the pancreas after the establishment of the inflammation. Its presence there might be merely accidental, even taking place after death, as is likely to have been the fact in Case XL.

(To be continued.)

ORIGINAL ARTICLES.

REPORT OF A CASE OF HYSTERO-EPILEPSY IN A MAN.

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THE patient, J. J. B., æt. twenty, single, was a tall, muscular fellow, whose intellect, if anything, was a little impaired. He was admitted into the nervous ward of the University Hospital, Oct. 26, 1888, under the care of Professor H. C. Wood.

From his mother the following history was obtained: Was of Irish parentage, born in the United States. Family history uncertain but apparently not important. At the age of seven had diphtheria; otherwise was always healthy up to twelve years of age when he fell down a flight of iron stairs at school and struck his head against the last step. He was sliding down the banisters at the time and slipped and fell from the second-story to the bottom of the building. The fall did not harm him greatly as he was not rendered unconscious, nor did he experience much subsequent pain. Since this accident he has complained, more or less, of a localized tenderness upon pressure being made over the region of head struck.

When thirteen years old he had another severe fall, this time through an open hatchway a distance of ten or fifteen feet. Fell upon his side, but with the exception of some slight bruises he escaped serious injury. Two years later, at the age of fifteen, he became subject to fits. Had never been affected so before. Stated that he was always aware of their oncoming but was not conscious during the attacks. He never falls during these paroxysms, as his knowledge of the arrival of an attack is such that he is enabled to lie down before its onset.

Acknowledges indulging in unnatural abuse of the sexual function, or masturbation, since he was twelve years old. Also states that he has been subject to involuntary seminal emissions, occurring sometimes as often as two or three times during the twenty-four hours. As a result he gradually became depressed and was constantly reminded of the fact that he had ruined himself, as he supposed for life.

His condition upon admission to the hospital was as follows: Physically he was well proportioned and in good general health; mentally and morally he was found deficient. His face was careworn; eyes bloodshot and restless, indicative of his mental excitement. Had used tobacco to excess but under medical advice had stopped it; never indulged in stimulants of any sort.

The frequency of the fits, at this time varied. Sometimes two to three a week; again, he would be free from them for days, but never more than a couple of weeks at a time.

Examination of the viscera was negative. There was slight palpitation of the heart, but not very marked. Firm pressure over the region of the head hurt in the fall, as previously mentioned, caused a cry of pain and provoked considerable emotional excitement, patient saying that unless it was stopped he would have a fit, all the while squirming around and contorting his body as though in great suffering. It was never possible, however, to bring on an attack by this method.

It might be stated here that moral persuasion combined with a sedative medicinal treatment soon brought about a change for the better in the patient's condition, both mentally and morally. The involuntary nocturnal seminal emissions were gradually lessened in number until it now might be said that they are simply physiological.

A description of one of his attacks will suffice to illustrate the rest, and as my notes of his first fit which I witnessed are the fullest account that was recorded, I will give it in detail.

It was fully a week after entrance into hospital that he had one of the paroxysms. Two days previously he complained of a feeling as though a ball was rising up and sticking in his throat, the *globus hystericus* of writers. Soon after this he remarked that an attack was near at hand. This sensation the following day was supplemented by a sort of stupor, associated with a tendency to melancholia, and a noise in head resembling escaping steam, which was most marked upon the right side. The next day about 3 P. M. I was hurriedly sent for, saying that J— was about having a fit. I found him lying in bed. He remarked that his eyes were heavy and misty and that his head felt as though it were expanding and would burst. Soon a twitching of the eyelids was noted; then of the muscles of the face, particularly of the mouth; these were followed by a convulsive tremor which seemed to pass down over the entire body and limbs. Head moved from side to side. Eyes became fixed and staring. He ground his teeth together and some difficulty was experienced in keeping the tongue from being bitten. Respirations became shallow and slow, and at times seemed to stop. A series of convulsive movements next ensued; not, however, of a very marked or active type. These were followed by rigidity of muscles and pronounced opisthotonos—not of the extreme type but sufficient to attract attention. This attack lasted for about a quarter of an hour and ended by his becoming gradually calm and muscles

[1] Loc. cit. [2] No. XLIII [3] No. L.

relaxed. He then sat up in bed and gazed vacantly around. Upon being spoken to, he seemed to understand fully what was said, but his answers were given in a very hesitating way. In about another fifteen minutes from the time the paroxysm started he become quiet and laid down. There was no rise of temperature after the attack. During the spasm he seemed to be unconscious of his surroundings. He remarked afterward that all he could remember of the attack was somebody speaking about the necessity of placing something between his teeth to prevent him biting his tongue, and that he had a queer, confused sound in his head which was probably just before he regained consciousness.

The treatment of this case, directed toward controlling the epileptic seizures, did but little, if any, good; his condition vacillating, sometimes worse, sometimes better. Finally, at the suggestion of Professor Wood, on the 23d of last November, the patient was thoroughly etherized and a circular flap of tissue was cut and dissected up over the region of the tender spot upon the head. The wound thus made was sewed up, dressed antiseptically, and bandaged. He was put to bed and kept there for two weeks. When he recovered from the anæsthetic he was told that the operation had been entirely successful, and that he would not be liable to any more fits; or, if so, they would be very mild in character and would occur at rare intervals.

At end of time, as stated above, he was allowed to get out of bed and put at light work about the ward. At the beginning of this year he was discharged from the house, and up to present writing —two months and a half since the operation—he has had but two slight returns of former attacks. These were brought on by undue excitement incident to participating in atheletic sports. He is now enjoying excellent health, has no seminal emissions, and shows no tendency to have a further return of the old trouble.

Hystero-epilepsy in the male is a rare affection. The diagnosis is based upon the following points of difference between

Hystero-epilepsy (in this case),	and	True idiopathic epilepsy.
1. Attacks never occurred at night.		1. Frequently occur at night (Da Costa).
2. Never ushered in with a cry.		2. Usually the patient screams at the onset of a paroxysm.
3. Was not the result of heredity.		3. Heredity plays an important factor in its etiology. (According to Gower, 35 per cent.; Hamilton, nearly 50 per cent.)
4. Gradual loss of consciousness.		4. Sudden and complete loss of consciousness.
5. Seldom fell; always knew when attack was coming on.		5. Usually fall, and with frequent serious injury resulting.
6. The frequency of attacks showed no influence upon patient's mental or physical condition; the trouble previously alluded to in this respect being attributed to the results of self-abuse; a fact later fully demonstrated by the result of treatment directed to this trouble.		6. The number of attacks have a decided effect on the mental condition (Mills).
7. Patient was of good physique and well nourished.		7. The reverse of this is true
8. Only slight distortion of countenance.		8. Distortion of face and eyes usually very great.
9. Pupils reacted to light.		9. Generally the pupils are insensible to light.
10. Convulsions were clonic, as a rule, and equally distributed over entire body.		10. Convulsions often more marked on one side than on the other, and more tonic than clonic; usually, however, the spasms are universal (Wood).
11. Paroxysms were not usually followed by sleep or any perceptible impairment of intellect.		11. It is the exception when attacks are not followed by profound sleep, by headache, and dulness of intellect.

The prognosis here seems to be favorable. The sham operation through which he went, and which effected so decided an influence upon his condition, through the mental impression which it made, will possibly result in a cure.

A somewhat similar case, of a woman, is reported in the *Lancet*,[1] under the title of "Castration in Hysteria," in an hysterical patient who had suffered for years from obstinate vomiting and severe ovarian pains. She became very weak, and finally consented to oöphorectomy as the only hope. The operation —performed under an anæsthetic—was a mockery, the skin only being incised; she was, however, perfectly cured.

At the meeting of the American Neurological Association (June, 1884), in the discussion which followed the reading of a paper by G. L. Walton,[2] Spitzka, of New York, cited a case of Israel's, of Breslau, in which a patient was cured of hystero-epilepsy by a sham operation—a superficial incision in the parietes of the abdomen.[3]

It is true that cases supposed to be cured often relapse, but it is hoped that such will not be the result in this incident. The general improvement, both in regard to his sexual organs as well as his mental state, is against a return of the disease. So is the sudden cessation of the attacks, which previously to the operation occurred several times weekly. Likewise, the fact that we have a male to deal with instead of a woman is additionally favorable.

ON UNUSUAL METHODS OF ACQUIRING SYPHILIS, WITH REPORTS OF CASES.

By L. DUNCAN BULKLEY, A.M., M.D.,
of New York.

(Concluded from page 236.)

II. Syphilis Brephotrophica.

Two great divisions are met within this group, relative to: 1, the nutrition of infants; and, 2, attendance upon them. Literature is very full of data

[1] Lancet, vol. ii. p. 588.

[2] A Contribution to the Study of Hysteria as Bearing on the Question of Oöphorectomy.

[3] Mills: Hystero-epilepsy (Pepper's System of Medicine, vol. v. p. 312).

bearing upon this branch of the subject, and many of the points connected with it are so familiar that they need only be mentioned. Happily, this mode of communicating syphilis is becoming more rare as its dangers are more recognized, and it could hardly be possible now to have such epidemics of syphilis from this source as have been reported in earlier times. Thus, in a little town in the southeast of France the celebrated "Pian de Nerac" occurred, in which more than forty women and children were infected with syphilis before the nature of the trouble was recognized, it all starting from a single syphilitic child.

But isolated cases are still constantly occurring, and among my sixty-six cases of extra-genital chancres are found six instances of chancre of the breast, and there were also at least four children known to have been infected from them. The following case illustrates the fact that infection may sometimes take place even when the nature of the disease is known, and greater or less precautions are exercised against infection.

CASE VIII.—Mrs. X. M., a very intelligent patient, was obliged by the sudden death of her husband to take a strange child to nurse, when her own was but a few months old. Fearing contamination, she very carefully kept the strange child on one breast, while she sedulously gave the other alone to her own child. Within some weeks the foundling died, with fully developed hereditary syphilis, and the mother then gave both breasts to her own child. In the course of some weeks later the breast which had nourished the strange child became sore on the nipple, and the ulcer resisted treatment for a long time, so that after awhile her own child ceased to nurse from it, and was kept on the other breast alone. In the course of time the mother became affected with general symptoms, and applied for treatment with a well-marked papulo-tubercular syphiloderm. Her child soon developed syphilis also, but it was never learned where the poison entered. It is more than probable that the lesion was in the mouth and gave very little trouble, as is commonly the case in infants who acquire syphilis at the breast. The child, however, suffered severely from constitutional syphilis, and was under my care through a number of years, and had considerable bone disease.

Syphilis has frequently been communicated also by means of the hand-feeding of infants, and cases are on record where feeding-bottles, sugar-teats, spoons, cups, etc., have been the means of conveying the poison, which need not be dwelt on at present.

The ordinary care of infants also affords a frequent opportunity for the interchange of syphilis between them and their attendants, in both directions. Various articles used in the nursery toilet have been reported as conveying syphilis, such as sponges, syringes, combs, napkins, etc.; and one infant acquired the disease from contact in a cradle with the lining which had become saturated with the secretions of a syphilitic child. Scratches and tooth wounds given by infants have also been known to communicate syphilis to attendants, while they in turn have not infrequently infected healthy children by fondling, by means of extra-genital chancres in various locations. A number of cases are on record where attendants have acquired a chancre in the site where a syphilitic infant had rested in carrying; in one instance, reported by Waller, the attendant was seventy years of age.

III. SYPHILIS TECHNICA.

This third main class of *syphilis insontium* embraces a large number of sub-groups, with a variety of individual methods of transmission of syphilis, in connection with the various forms of body service, medical and surgical, as also by nurses and attendants on those affected.

We find here three very distinct main divisions, according as, 1, when the operator is the victim; 2, when the operator is the syphilifer; and 3, when the operator is the medium.

1. *When the operator is the victim.* Physicians and others in the pursuit of their profession have, as is well known, acquired syphilis in almost numberless instances, and in the most unsuspected manner, and it is hardly necessary more than to allude to the subject.

Cases are on record where the poison has been received by surgeons during operations, and also by anatomists during dissection; it is also not infrequently acquired during manipulative proceedings, and students and others at venereal clinics have contracted chancres on the fingers and elsewhere in the careless handling of syphilitic sores. Jullien[1] relates a case where an eminent specialist who had a slight bleeding wound on the finger was called upon to examine a chancre on the upper surface of the glans penis. He held the wounded finger carefully aloof from the sore, but during the examination he found that there was a second chancre of the scrotum which had just come in contact with the finger which he had striven to protect. Realizing the danger he at once washed carefully and thoroughly cleansed the part, but all in vain, as a chancre formed on the wounded finger and the syphilis ran its course. Dentists have also been reported to be infected in practising their profession.

The largest numbers of syphilitic inoculations in this group are furnished by accoucheurs and midwives, and very many instances of this nature are recorded in literature.

[1] Jullien, Traité pratique des mal. ven., 2d ed, Paris, 1886, p. 537.

In the list of extra-genital-chancres already given, there are found seven cases of chancre of the finger, five of which occurred in physicians. The following case is of peculiar interest, inasmuch as the sufferer also infected his wife, although he had exercised as he thought, the utmost caution against such a misfortune.

CASE IX.—Dr. X. C., aged thirty-one, first noticed a soreness about the base of the nail of the third finger of the left hand during the latter part of June, 1884; this increased in severity until a chancre of some size developed, which remained, though partially healed, at the time of his visit in September of the same year. He had had only local applications, including burning with nitrate of silver.

Ten days before his visit a slight eruption had appeared upon the forehead, which increased, so that when he presented himself most of the body was covered with a characteristic maculo-papular syphilide; there was also malaise, with aching in the limbs which he had considered malarial and had treated with quinine. There were also very general adenopathy and soreness of the throat just beginning, and later he had a severe iritis and other symptoms of constitutional syphilis. When first seen the entire end of the finger was thickened and red, the nail raised from its bed, and at its root an ulcer was seen circular in shape, presenting an almost healed, purplish, glazed appearance. The infection was traced to a confinement case about a month previous to the appearance of the sore, when a hydrocephalic child was delivered dead born of a mother whom he believed to be syphilitic.

Almost six months after the first visit of Dr. X. C., he brought his wife to me with a fading maculo-papular syphilide, presenting very characteristic lesions about the mouth and chin, with mucous patches abundant in the throat, and general adenopathy. The history was that nearly two months after her husband's first visit she had begun to feel poorly, with malaise and bone-ache, until about a month later she took to the bed, with what was suspected to be typhoid fever by several physicians who saw her. A slight eruption had appeared on the abdomen and chest, which was regarded as an usual form of the typhoid exanthem. A month after the time that she took to bed the throat began to be sore, and soon the glands in the neck became enlarged.

No clew could be found as to the method by which she received the poison; she had no initial lesion on any external part of the body or buccal region, nor could any trace of a primary sore be found in the genital region or vagina, even by a well-known gynecologist, who examined deeply for it. The case might possibly lend weight to the supposed communication of syphilis by the seminal fluid, and her husband, who had studied the case carefully, suggested that infection might have occurred through a pregnancy, as it was thought that she possibly might have had a miscarriage very early in conception, as there was at the time a delay in her menses, but of this they could not be certain.

In one of the instances of chancre of the finger in the list, the infection occurred on the third finger of the right hand in a lady who had taken all the care of a relative who had an ulcerative disease about the eye, changing the dressings, etc., during six or seven months; during this period the finger became sore at the root of the nail, and as the ulcer healed she had a general eruption, with malaise, bone-aching, etc., followed also by later manifestations of constitutional syphilis.

Physicians and attendants upon syphilitics have also received the infection in other regions than the fingers, and cases are on record where chancres have thus occurred on the eyelids, nostrils, and lips, from conveying the poison on soiled fingers or otherwise, and more than one instance has been reported where the patient has projected the virus by coughing in the face of the physician, and chancre of the eyelid or elsewhere has resulted. One case is on record where a physician acquired a chancre of the tonsil by practising artificial respiration with the mouth on a syphilitic child. Many instances can be found where individuals have become infected by sucking recent wounds, and also by breast-drawing with the mouth.

2. *When the operator is the syphilifer.* In this instance the operator having syphilis communicates his own disease to another by means of some body service. The number of reported cases falling under this category is very large, and come under a variety of heads. We have already seen that accoucheurs and midwifes often contract syphilis in their calling; and, on the other hand, numerous instances are on record where they have been the means of spreading the disease to others, and even in large numbers. The celebrated epidemic of St. Euphemie in France was of this nature. A midwife acquired a chancre on the right index finger, followed by a full attack of constitutional syphilis. She contiuued her calling for four months and communicated syphilis to more than fifty women, and through them at least thirty others were infected. In another epidemic in France over one hundred were thus infected with syphilis, and very recently Klein has reported an epidemic in England in which thirty married women, nine husbands, and two infants contracted syphilis, directly or indirectly, from a diseased midwife.

The operation of breast-drawing by the mouth has also in times past proved a very fruitful opportunity for the intercommunication of syphilis; we have already mentioned the acquiring of syphilis by the operator in this manner, and there are abundant instances on record where the disease has by this means been conveyed to numbers of innocent victims. As early as 1654 an event of this nature was reported, where a professional breast-drawer infected

many nursing women with chancre of the breast, and these in turn gave syphilis to their nurslings, who again communicated it to others. Although this practice is less common in this country and among the more highly civilized people than among the peasantry of European countries, yet cases of this nature still occur here and there, and at times breast-drawing by the mouth has given rise to epidemics of syphilis of considerable size. Leloir[1] has reported an epidemic of this nature occurring as late as 1880, where a woman acquired a chancre of the lip and she infected four women on the breast, who in turn gave syphilis to three nursing infants, one of whom, as also one of the women, died of the disease; one of these infants infected its father through the nursing bottle, and another infant gave the disease to its wet-nurse, who again transmitted it to her own infant.

Among the more curious and unexpected methods of communicating syphilis innocently may be mentioned the practice, sometimes followed, of removing foreign bodies from the eye by means of the tip of the tongue. In two small villages in Russia, Tepljaschin[2] found, among a population of 532 persons, no less than sixty-eight individuals, twenty-three males and forty-five females, who were affected with syphilis, about one-quarter of them being under ten years of age. One-half the entire number had been infected directly by a female quack, who had followed the industry of removing foreign bodies from the eye, and treating trachoma, with the tongue. The woman had herself received the disease in her calling and had continued to spread the same. A number of single instances of the same method have been recorded, and of these at least two[3] have been reported in this country.

Syphilis has also been communicated by means of the sucking of recent wounds, as we have also seen that it may be acquired by the operator in this manner.

Tattooing is now well recognized as one of the avenues through which the syphilitic virus may be accidentally introduced, and a total of no less than seventy-five cases of this nature have been found, reported by a number of different observers. As is well known, the poison is commonly, if not always, supplied from mucous lesions in the mouth of the operator, by means of the saliva used to moisten the needles or ink during the operation.

Among the personal cases of extra-genital chancre before alluded to, there was one where the disease was undoubtedly received in this manner through a tattoo on the right forearm.

[1] Leloir: Leçons sur la Syphilis, Paris, 1886, p. 54.

[2] Tepljaschin: Cited in Viertelj. f. Derm. u. Syph., 1887, p. 1138.

[3] Cited by de Beck, Hard Chancres of the Eyelid and Conjunctiva, Cincinnati, 1888, p. 48.

3. *When the operator is the medium.* Our last group of cases comprises those where the operator serves as the medium to convey syphilis from one person to another, by means of various forms of body service. A large number of instances are on record where this has happened, and many of the facts are well known to all and need but to be mentioned.

Vaccination is, perhaps, one of the most widely recognized instances coming under this class, the first authentic cases being reported by Marcolini as occurring in Lombardy in 1814, in which out of forty subjects vaccinated from a child with inherited syphilis almost all were infected. Hundreds of cases have been reported since that date, many of these occurring in epidemics of some size; thus, at Schleimitz and St. Vait in Styria, Kocevar reported an infection of sixty-six persons, of whom thirty-one were vaccinees, from whom nineteen mothers, and eleven others, including children, received syphilis. The epidemic at Rivalta, Italy, is a well-known instance of this mode of infection.

Ritual circumcision has also furnished numbers of victims of syphilis, who commonly receive the infection by the practice of staunching the blood by the mouth of the operator. The first reported cases of this occurred in 1805, since which time many observers have reported cases, and on one occasion, referred to by Jaffe,[1] thirty boys were inoculated by one operator in Vienna.

Injuries made by dental instruments have been reported by several observers to be followed by syphilis at the site of injury; in these instances, the supposition is generally that the poison had been conveyed by the instrument which had received it from mucous lesions or blood from the mouth of a syphilitic person, it not always having been sufficiently cleansed. Roddick[2] reports a case where a chancre formed at the site of extraction of a tooth, the gum being considerably lacerated in the operation.

The following very interesting case illustrates the inoculation of syphilis following a wound by a dental instrument in the tongue.

CASE X.—Mr. X. W., a gentleman of intelligence and position, aged sixty years, came to my office on account of a sore on the tongue which he feared to be a cancer. The history was that, ten weeks before his visit, he had first noticed a little point of soreness on the tongue, which had gradually increased in size, in spite of treatment at the hands of another physician, who had evidently not recognized its character, until latterly it had come to give him so much annoyance that he was conscious of its presence at all times.

[1] Jaffe: Die rituelle Circumcision, etc., Leipzig, 1886.

[2] Roddick: Montreal Medical Journal, vol. xvii. No. 2, 1888, p. 93.

On examination there was found on the right side of the tongue, about an inch from the tip, a hard, inflamed mass, nearly half an inch in diameter, ulcerated in the centre, and with the edges somewhat everted; it was not ordinarily painful, except when irritating food or drink touched it; there was already a small, enlarged and painful gland beneath the jaw on that side. Thinking that possibly the lesion might be due to local irritating causes, he was given a soothing mouth-wash, and an alkali internally. Five days later there was a marked improvement; he had had some roughened teeth smoothed off and had left out his set of artificial teeth. The ulcer then looked less irritated, but its margin was more clearly defined, and the edge harder, the submaxillary glands of that side were more swollen and hard.

The diagnosis of chancre of the tongue was then recorded, and he was placed upon anti-syphilitic treatment, under which the sore rapidly improved; some days later a general maculo-papular eruption appeared, affecting even the palms, with other signs of constitutional syphilis. The ulcer healed rapidly and in six weeks there was only a scar with slight hardness at its base.

In searching for the mode by which the syphilitic poison gained entrance, it was learned that during the month or so previous to the occurrence of the tongue chancre he had been, through the persuasion of a friend, under the care of a dentist of a cheaper advertising order, who, he had noticed, was not at all cleanly in his person or instruments. He could not determine accurately the date of particular injury of the tongue, but work had been done in that portion of the mouth, and he remembered having the instrument slip occasionally. The patient was a married man, with a family, and had certainly not been exposed in any other manner; he was repeatedly questioned on this point, and was himself anxious to learn how he had acquired the disease.

The probability is very strong, therefore, that the poison was conveyed on the dental instrument from some preceding patient who had active syphilitic lesions in the mouth. The likelihood of such exposure and contamination of dental instruments in the hands of those who are careless as to cleanliness is very great, and is illustrated by the fact that this very patient, while under my observation and before the nature of the ulcer on the tongue was determined, and while it was secreting freely, had himself been to another dentist and had had the teeth adjoining the ulcer filed and polished. Too great care can hardly be exercised in warning patients with active mouth lesions of syphilis, or indeed all those in the early, infection period of the disease, against exposing others in this manner.

In earlier times, and especially in rustic communities, the operation of wet-cupping has on repeated occasions given rise to syphilitic contagion, and a number of epidemics of this nature are on record; the earliest of these is the celebrated "Maladie de Brunn" in Moravia, in 1578, where no less than eighty persons were infected in three months by this means, in addition to about one hundred in the surrounding country. In Finland repeated epidermis have occurred from this cause, and in one instance nearly two hundred persons were infected.

Minor surgical operations, such as opening abscesses, scarifying a hydrocele, the use of serrefines after circumcision, and also skin-grafting, have all given rise to chancres at the site of the wound, followed by constitutional syphilis.

Razor wounds also, have not infrequently afforded an opportunity for the entrance of the syphilitic poison, the inoculation occurring possibly during shaving, possibly afterward from other sources.

Among the personal cases of extra-genital chancre already referred to, occur three striking cases illustrative of this mode of infection, and a fourth one, not quite so certain. One of these, which is of special interest from the intense severity of the subsequent syphilis, will suffice to illustrate the subject.

Case XI.—Mr. XX., a druggist, aged thirty-three years, unmarried, came to my office in 1882, on account of a general eruption of a papulo-squamous character, covering almost the entire body and extremities. Although he had been exposed he had never contracted any venereal disease, and at the time of his visit there was no trace of a chancre on the penis or elsewhere, except as to be mentioned.

Upon the left cheek, however, there was a sore which at once attracted attention, and which proved to be a chancre, with the following history:

He had always been shaved at barber-shops, by different persons, using the public brushes and cups indiscriminately. About two and a half months before his visit his cheek had been cut by a new barber, who, he noticed, was uncleanly in his person and habits, and who shortly left the employ. A pimple soon formed on the site of the injury, which was again cut from time to time by the razor, and the place covered with court plaster; the sore enlarged, and later the crust was allowed to remain upon it. Some weeks later he had a chill, followed by pains in the bones, for which he took quinine; the submaxillary glands of that side began shortly to swell, and a little later the general eruption appeared, with which he presented himself.

When first seen there was on the left cheek, not far from the angle of the mouth, and about an inch from the angle of the jaw, an ulcerated surface, circular in shape, and about three-quarters of an inch in diameter, slightly raised, and with a raw, succulent surface, in which many hairs still stood, partly covered with a crust; the lymphatic glands beneath the jaw, on the left side, were as large as small almonds, and some smaller ones were felt in front of the neck. The entire body, head, and limbs were covered with a brownish-red, papulo-squamous syphilide of very characteristic appearance; the throat was very sore from abundant mucous patches.

The subsequent course of the disease was very distressing; the cutaneous lesions were very severe and prolonged; he had an intense choroiditis, and

at times active nervous symptoms, having once also a perfect locomotor ataxia; this latter yielded, as did other syphilitic phenomena, to active treatment, but for over two years, while under observation, he had as severe symptoms of syphilis as are often seen, rendering him helpless on several occasions. Six months after his first visit—that is, nine months after infection—it was recorded that the glands beneath the jaw were still swollen, and the mark of the chancre was still plainly visible on the left cheek.

Surgical sounds and specula are credited with having produced syphilitic inoculation, and in one particular instance, namely, Eustachian catheterization, this has been the source of repeated infection. No less than twenty-five different persons have reported one or more cases of this nature, and of these cases, about sixty were traced to the practice of a certain ear specialist in Paris. Some instances of this mode of infection have also been reported in this country.

Time does not permit of the further elaboration of this most interesting and important subject of the acquiring of syphilis by means other than venereal. But from this hasty, and by no means complete sketch of some of the recorded methods and instances of the communication of syphilis in the various walks and occupations of life, as also from the illustrations given, it is seen that the disease by no means deserves to be classed always as a venereal affection, nor are the sufferers from it always to be looked upon as guilty of sexual transgressions; syphilis occupies an important place, not only pathologically, in the great mass of diseases affecting the human race, but also practically as one which may at any time affect the most innocent and the least suspecting.

Syphilis has been found to attack the young and old alike, irrespective of age or condition, and in all the many instances or classes alluded to, quite independently of any venereal act or possibility. As each new case or series of cases comes to light, it becomes more and more probable that the number of instances in which syphilitic infection has thus innocently occurred is much greater than is commonly imagined. The total number of innocent victims actually mentioned in connection with about one hundred and fifty epidemics, large and small, of *syphilis insontium*, amounts to some thousands, while thousands of separate cases of extra-genital chancre are also found scattered through literature.

When we consider the immense numbers of syphilitic patients seen every year in the public clinics of the world, most of them living without any restraint upon their actions, even during the most contagious period of the disease, it can readily be understood that the liability for others to contract the disease innocently is by no means slight. With a poison so freely secreted from mucous lesions, and so virulent, and capable of being transported and introduced in so many different ways, and, as far as is known, endowed with the possibility of being preserved for an indefinite period, the only wonder is that cases of non-venereal communication of syphilis are not even more frequent than they are now known to be.

The subject of the prevention of syphilis is, therefore, surely one which calls for serious attention, and one which claims the best thought, both of the profession and of the community.

4 EAST THIRTY-SEVENTH ST., NEW YORK.

MEDICAL PROGRESS.

Treatment of Scabies.—DR. JAMES C. WHITE, of Boston, in a paper recently read before the Boston Society for Medical Improvement, advocates the following method of treatment which he states is applicable in every case, however extensive or severe the accompanying inflammatory processes may be. He prefers a mixture of the three active agents and combines them in this way:

℞.—Sulph. flor.	. . . . .	℥ij.
β-naphthol	. . . . .	℥j.
Balsam of Peru Vaseline	. . .	āā ℥j.—M.

This quantity is generally sufficient for a single case. The patient is directed to rub a third of this mixture into the whole surface of the body, from the neck downward at bedtime. He is especially told to rub it between the fingers and upon the penis, and that it must be applied to the back by some other person. He is to sleep in old garments, that the bedclothes may not be soiled. In the morning the skin is to be thoroughly washed with soap and water. The use of the bath in this class of patients is of course out of the question, nor is it essential. The ointment is to be used in this way for three consecutive nights. Generally the itching ceases almost wholly on the first application. The patient is also told not to use it after the third night, unless, after waiting two more nights, there should be a decided return of the pruritus here or there, in which case the salve is to be rubbed into such parts only, and only for two nights running. For very young children he omits the naphthol in prescribing the ointment, on account of its occasional irritating properties.

In cases where the accompanying eczema is severe, it is well to require an inspection of the patient again on the sixth or seventh day, when it will sometimes be found necessary to direct a course of treatment addressed to this residuary condition. A very frequent mistake on the part of the physician or patient at this stage is the conclusion that the appearances, or accompanying itching, are signs of the continued activity of the original affection, and the consequent renewal of the use of the stimulating parasiticide, which only aggravates the existing process. He has often seen cases of post-scabietic eczema in dispensary and private practice, which have been kept going for months by such errors of judgment. It must also be remembered that in prolonged cases of itch the cutaneous nerves have acquired, as it were, the habit of demanding to be scratched, and seem to require

it for a long time after every visible sign of the disease has disappeared, and these cases of surviving pruritus are often mistaken for remaining evidence of the original affection, and mistreated accordingly.

Directions are always given that on the first night of the treatment all the clothes which have been worn next the skin—shirts, drawers, and socks, and the sheets and pillowcases last slept in—shall be thoroughly boiled before being used again. Gloves should be baked or destroyed.—*Boston Medical and Surgical Journal*, February 14, 1889.

Thymol in the Treatment of Diabetes.—DR. BUFALINI (*Annuale Universali di Med. and Rev. Soc. Med.*, No. 31, 1888) states that thymol, which by some has been highly praised as a remedial agent for diabetes, while others claim that it is dangerous, has, in his hands, exerted absolutely no influence on the course of glycosuria and diabetes. Only in two cases of acetonemic diabetes did he obtain, during, as well as shortly after, the administration of thymol, an amelioration in the acetonemic phenomena, namely diminution of the odor of the breath, of the quantity of acetone in the urine, and a general improvement in the patient's condition.—*Journal de Méd. de Paris*, February 3, 1889.

Creolin Pills.—

℞.—Creolin	. . . .	12	parts.
Alcohol. dilut.	. . .	2	"
Powdered tragacanth	. .	2	"
Extract of liquorice Powdered liquorice root	.	āā 24	"—M.

Make 200 pills.

Sig.—Take two pills, two or three times daily, in decomposition of the intestinal contents, especially during infectious diseases.—*Berliner klin. Wochenschrift*, February 4, 1889.

A Case of Reinfection with Syphilis.—The case is recorded in the *Giornale delle Mal. Ven.*, of a woman aged forty-six, who had contracted syphilis when a child from a schoolfellow. She suffered very severely at the time, and had the characteristic eruptions, tibial pains, sore throat, and subsequent abortions. Ten years later she had well-marked tertiary manifestations, which gained for her the soubriquet of *fistolosa*, in her village. While she was still in the same deplorable condition she was reinfected by her husband, who had a chancre on the penis and was covered with a roseolar eruption. She came to the hospital, and was found to have a typical indurated chancre on the labium, with corresponding glandular enlargement, and a confluent rose-colored papular eruption all over the body. She also complained of general malaise and pain in the shoulders and knees. These symptoms promptly yielded to treatment, and there would not seem to be any reason to doubt the accuracy of the diagnosis in both instances. Indeed, that exceptions should exist in the protection afforded by a prior attack of syphilis, is only what a study of other specific diseases would lead one to expect.—*Medical Press*, Feb. 6, 1889.

The Microbe of Diphtheria.—M. ROUX, sub-director of the laboratory at the Pasteur Institute, in conjunction with M. Versin, has succeeded in isolating the generating microbe of diphtheria. They have studied the conditions in which this microbe is developed; and have succeeded in reproducing diphtheritic infection in rabbits, pigeons, fowls, and guinea-pigs. Pushing their experiments further, they have also isolated the poison secreted by the microbe from which are derived all the asphyxic and paralytic symptoms of croup or diphtheria; and it is foreseen that the time is not far distant when prophylaxis by means of inoculation will be established. This discovery will certainly be a great boon, since diphtheria is one of the most cruel maladies which afflict humanity. In the note on this subject by M. Roux, the author further states that all the experiments on animals tend to prove that the microbe of diphtheria develops only on mucous membranes already diseased, and it is probable that this is most frequently the case in man. Hence diphtheria is particularly frequent after an attack of measles and scarlet fever. Hence also a simple sore throat occurring in these maladies should never be neglected; frequent washings of the mouth and throat of children affected with these two diseases, should be practised with solutions of carbolic acid. Even in confirmed diphtheria, carbolic acid seems to be the most efficacious antiseptic. —*Lancet*, February 9, 1889.

The Local Treatment of Laryngeal Phthisis.—DR. A. SOKOLOWSKI, of Warsaw, concludes an exhaustive article on the treatment of laryngeal phthisis, with the following summary:

1. A cure of laryngeal phthisis, though seldom effected, is possible.

2. Cicatrization of each ulcer which takes place by itself, or through local application, is closely related to the general condition and the character of the local changes in the lungs.

3. The best local results are obtained from the combined treatment by lactic acid, surgical procedures, and the galvano-cautery.

4. General treatment should go hand in hand with the local treatment.—*Wiener klin. Wochenschrift*, January 31, 1889.

Salicylate of Cresol.—At a meeting of the Academy of Sciences PROF. BOUCHARD read a note for Dr. Letzinski, of Berne, on the salicylate of cresol, which is not soluble, and which is a powerful antiseptic. This medicament has, according to the author, given good results in acute rheumatism. As it is possible to saturate the intestines without inconvenience, and as the microbe of cholera appears to have its principal habitat in the intestines, Dr. Letzinski thinks that this substance may be employed with success in the prodromic period of the choleraic attack. M. Bouchard, however, makes some reserve on this last point, for he does not participate in the opinion of those who hope to cure cholera with antiseptics introduced into the intestines.—*Lancet*, February 9, 1889.

Nature and Treatment of Diabetic Coma.—DR. STADELMANN, of Dorpat, in a recent article in the *St. Petersburgische Wochenschrift*, points out the great similarity which seems to exist between the coma of diabetes and the condition produced in herbivorous animals by inducing acid intoxication. Amongst other points, he refers to some analyses by Minkowski, of the gaseous contents of the blood. In the normal condition, the blood of the

rabbit contains 25 per cent. of carbonic acid; but when the animal is suffering from artificially induced acid intoxication, the carbonic acid is diminished. Thus, in one instance, Minkowski found it 16.4 per cent. with a moderate degree of intoxication; when the latter was increased, the percentage of carbonic acid fell further, first to 8.8, and finally to 2.9 per cent. In order to compare this with the gaseous changes in the blood of diabetics, he examined the blood of a patient before and during coma, the carbonic acid being respectively 17 and 3.34 per cent. In order to ascertain whether this diminution of the carbonic acid in the blood was merely due to coma as such without reference to its cause, he examined the blood of a comatose patient, not a diabetic, whose condition was due to meningitis. Here the carbonic acid amounted to 28.2 per cent. The acid existing in diabetes appears to be oxybutyric acid, which in some cases appears in the urine to the extent of something like three ounces per diem. Some years ago Dr. Stadelmann found a new acid, which he believed to be crotonic acid, in considerable quantity in certain cases. He now, however, considers it merely a substitution-product from oxybutyric acid.

The indications for treatment supplied by these views are, of course, to combat the acid by large quantities of alkali. Several attempts have been made to treat diabetic coma by injecting into the veins from one to four ounces of carbonate of soda dissolved in about four pints of water, with a little chloride of sodium. In only one instance, however, has this proved successful, and unless it is done very early no good result can be fairly expected of it. It is found that the urine in twelve hours after the injection is intensely acid. Better results are to be obtained in attempting to ward off coma by giving alkalies freely. Thus, Dr. Stadelmann prescribes about an ounce of tartrate or citrate of soda dissolved in about half a pint of soda-water two or three times a day, and has found great reason to be satisfied with this line of treatment. Of course, if coma should come on, he would have recourse to alkaline intravenous injections without loss of time.—*Lancet*, Feb. 9, 1889.

Treatment of Minute Nodules of Lupus.—DR. UNNA (*Monatshefte für prakt. Dermatology*, No. 19, 1888) bores out each nodule, after the mass of deposit has been got rid of, with a 10 per cent. sublimate point, then dresses the part till healed, with the following ointment suggested by Dr. Brooks:

R.—Salicylic acid	20 parts.
Creasote	40 "
Simple ointment	40 "

—*Edinburgh Med. Journal*, Feb. 1889.

Action of Sulphonal.—DR. RUSCHEWEYH-JEUA reports in the *Neurologischen Centralblatt*, No. 21, 1888, the following results obtained with sulphonal: of 212 administrations given at the psychiatric clinic its action proved fruitless in only twenty-four, or 11 per cent. Until recourse was had to Dr. Kast's latest method of administration (mixing the drug with one pint of milk or hot bouillon and taking it at supper time) the results were still less favorable. The mixture thus being rendered intensely bitter, one can, should the same hinder digestion, add to it a few drops of hydrochloric acid. If the hypnotic was prompt in its action, the consequent lassitude generally observed on the following day was not noticeable and yet in most cases sleep was obtained the following evening without any of the drug having been taken. The author explains this circumstance by the fact that sulphonal circulates in the blood for twenty-four hours and is thus enabled to still exert its physiological action the second evening. Only in the very excited paralytics was daily administration necessary. Excellent results were obtained from its administration in the case of a morphine-eater, a female, as well as of two syphilitics who suffered from insomnia caused by the pain consequent on calomel injections.—*Deutsche med. Wochenschrift*, Jan. 31, 1889.

Artificial Maturation of Cataract.—DR. PARISOTTI, of Rome, in a lecture published in the *Riforma Medica*, describes two cases in which success appeared to follow attempts to induce artificial maturation of cataract by a procedure differing somewhat from the operations proposed by other ophthalmologists for this purpose. Having produced local anæsthesia by means of cocaine, and having washed the eye with an antiseptic solution containing corrosive sublimate, Dr. Parisotti makes an incision in the upper part of the sclero-corneal border, about six millimetres in length; the pupil is then dilated by atropine, and, the aqueous humor having been let out, rather energetic massage is applied to the cornea for about a minute. The antiseptic lotion is again applied, and a bandage kept on for three days. In two or three weeks considerable progress is to be observed in the maturation.—*Lancet*, February 9, 1889.

Salol in Cholera.—DR. W. LOEWENTHAL, at a meeting of the Académie des Sciences, stated that he had conducted a number of micro-biological experiments, the results of which led him to conclude that the bacillus of cholera only develops toxic properties when it comes in contact with the pancreatic secretion. Guided by this he searched for a drug, which would be harmless to the human economy and still prevent the development of the cholera bacillus in the pancreatic fluid. Salol he believes to have this power, since, in the presence of fresh pancreatic fluid, it destroys cultures of cholera bacillus and if first mixed with the culture material (generally gelatine) renders this material sterile.

To prove that the drug itself was perfectly harmless, the author himself took at ten o'clock one morning seventy-five grains, and the same evening at seven o'clock, seventy-five grains more. The morning dose, which he took fasting, produced no ill effect save a passing vertigo, while the evening dose prodnced no symptoms whatsoever. The urine became somewhat darker and remained so for forty-eight hours from the time of the ingestion of the second dose.

Until further clinical investigations have shed more light on the matter, the author proposes that this drug should be used as follows:

As a prophylactic: three times daily after the principal meals, thirty grains each time.

As a therapeutic agent: sixty grains to be taken when the first symptom of cholera shows itself and then fifteen grains every hour.

As much as five drachms may be administered daily. —*Revue de Thérapeutique*, Feb. 1, 1889.

Treatment of Psoriasis.—

℞.—Pyrogallic acid } . . āā ʒj
Chrysophanic acid }
Ether and spirit, q. s. to liquefy.
Collodion . . . . . ʒiij.—M.

Paint on the diseased surface every three days, after a bath.—*Medical Press*, February 6, 1889.

Diabetes and Tumors.—DR. TUFFIER has recently published a monograph on this somewhat important subject in the *Archives Générales de Médecine*. The coincidence of diabetes and neoplasms, only noted hitherto in a few scattered publications, and entirely overlooked in standard text-books, does not appear to be rare. This coincidence is not surprising to the author. He accepts M. Verneuil's bold theory that both tumors and diabetes are related to the arthritic diathesis. Already almost every form of tumor has been observed in diabetic patients. Almost every form of diabetes has been found to attack persons already the subjects of tumor. As a rule, the constitutional disease comes first; the patient is diabetic already before the tumor makes its appearance. Malignant tumors, as a rule, advance without causing much pain, and somewhat slowly in these cases, but they proceed more rapidly than the diabetic symptoms. They are apt to be taken for innocent growths. The complication in question is very serious in respect to operative interference, as we all know. No surgeon should think of removing small, innocent tumors which are causing no trouble.

Dr. Tuffier describes two instructive cases. In the first, death occurred forty hours after the removal of a small parotid tumor. The fact that the patient was diabetic had been overlooked. This was also the case in the second example of the dangers of operation under the circumstances. "A little hypertrophic tumor of the skin of the cheek" was removed at the patient's request. Phlegmonous erysipelas, followed by sloughing, set in and killed the patient within five days. Urgent operations must, Dr. Tuffier asserts, be undertaken with great caution. The safer are preferable to the most thorough, in his opinion. When an operation appears absolutely necessary, but not urgent, it is important to spend some time in reducing the diabetic symptoms by medical treatment. Should, however, all the sugar and polyuria disappear, the surgeon must still never overlook the nature of the patient's diathesis. Under the most favorable circumstances, in any case of that kind, deep operations and prolonged dissections, free division of vessels, and the formation of large flaps are to be avoided. The slow progress of tumors and the little pain which they produce are important facts, according to Dr. Tuffier. He has found that malignant tumors lie almost latent in diabetic subjects for a long period. Removal of a similar growth from a healthy subject would hardly insure him against so long an interval of time before recurrence. When an operation is thought advisable, the thermo-cautery is preferable to the knife. No attempt to insure union by first intention should be made if it involves the slightest traction on skin-flaps. The wound must be laid open, but dressed with extreme antiseptic precautions.—*British Medical Journal*, February 16, 1889.

Cocaine Poisoning.—Since the introduction of cocaine into the practice of medicine, so many cases of poisoning have occurred that it is important to analyze these for future guidance. It is the fate of nearly every useful but powerful drug, before its complete action is recognized, to be either too extensively or too recklessly employed. Perhaps this has been the case with cocaine, because it is commonly used for its local anæsthetic effect—to alleviate local burning, tenderness or pain—and for its anæsthetic effect prior to the extraction of teeth or other minor operations. Although these local uses are the chief ones for which cocaine is employed, yet it is important to bear in mind that it is a very powerful poison. When simply painted on to the parts serious results do not often ensue, except when applied to the pharynx or larynx in the form of spray. A tendency to syncope and complete unconsciousness may follow its use in this way. When injected under the gums for the extraction of teeth, or under the skin for the removal of a tumor or the opening of an abscess, great care is necessary in graduating the dosage, a fact by no means generally recognized. And this fact becomes all the more important when it is remembered that there is very great idiosyncrasy in the action of cocaine. A number of trials were made with cocaine by Decker, with the view of lessening the pain caused by hypodermatic injections of calomel; and he found that a dose of 0.05 gramme (three-quarters of a grain) ought never to be exceeded in a hypodermatic injection, and that usually half that amount, three-eighths of a grain, was safe to administer. This does not mean that a dose larger than three-quarters of a grain cannot be administered with impunity; but it is impossible to predict that a larger dose will not cause serious symptoms of poisoning.

Besides its action as a local anæsthetic, cocaine is a stimulant to the central nervous system first, and finally a paralyzer. It increases the respirations, and causes death either by respiratory paralysis, or more commonly, according to Mosso, by a tetanus of the respiratory muscles. Cocaine, moreover, paralyzes the vagus, causing extreme rapidity of the heart's beats; it raises the arterial blood-pressure, and increases the intestinal movements. It diminishes also the secretion of sweat and of saliva, and causes a considerable rise of body temperature. According to Mosso, cocaine is one of the most energetic substances known in causing an increase of the temperature.

In many of its actions, therefore, cocaine resembles atropine; in dilating the pupil, in stimulating the central nervous system, and finally paralyzing it; in paralyzing the vagus, in diminishing the secretions, and in increasing the intestinal movements. It differs from atropine in producing a contraction of the peripheral bloodvessels, while the primary contraction caused by atropine rapidly passes into dilatation. From this epitome of the physiological action of the alkaloid, the symptoms of poisoning in man are readily understood.

The question whether in a given case a drug will produce symptoms of poisoning or not depends chiefly on the dose given, but also on the mode of administration, and on the rapidity of elimination. Cocaine given hypodermatically is rapidly absorbed; it is also, in the healthy individual, rapidly eliminated by the kidneys. If, however, there is extensive disease of these organs, elimination will be prevented to a greater or less extent, and the symptoms of poisoning will be more serious. In a

recent case, in which twenty-two grains were accidentally administered by the mouth, the patient, a man, died almost immediately. At the post-mortem examination it was found that one kidney was tuberculous and the other was not functional owing to advanced atrophy, a condition of organs which would certainly prevent the rapid elimination of the alkaloid.

The slow elimination in other persons may explain some of the cases in which cocaine has caused poisoning. Mowat relates the case of a man, aged twenty-nine, in whom one drop and a half of a ten per cent. solution was injected at the sides of a rodent ulcer of the eyelid, previous to operation. The dose was only about one-seventh of a grain, but as the wound was being sewn up the patient became pale, and gasped for breath, while his legs were stiff and cold. The pupils were half dilated, and reacted to light; the pulse was weak and very frequent. The knee-reflex was exaggerated, and clonic spasms of short duration supervened. When these had ceased the patient appeared drunk, and, on recovery, was giddy for some time. It is unusual to observe such serious symptoms of poisoning from so small a dose. The great vascularity of the eyelid may have aided the rapid absorption of the poison. Poisoning, however, by larger doses is by no means uncommon. A dentist, for example, injected into the gums of a girl, aged nineteen, one grain and a third (0.1125 gramme) of cocaine in two portions. Anæsthesia was complete in a few minutes, and the tooth was extracted with ease. After washing out the mouth once or twice, the patient became very pale and fell into convulsions. Nitrite of amyl and cold affusions were tried, but had no effect in restoring the patient. She became unconscious and groaned, while the clonic spasms in the muscles of the body and extremities lasted for five hours. The pupils were dilated and did not react to light. At first the pulse at the wrist could not be counted, but afterward it was 176 in the minute. The temperature was raised, being 38.2° C. (100.8° F.), and the respirations were 44. The unconsciousness lasted two hours after the spasms had ceased. The patient recovered consciousness in seven hours, but was then unable to use the extremities. There was well-marked photophobia, diminished sensation in the hands, anæsthesia of the mucous membranes of the nose and mouth, and loss of smell and taste. The pulse was now 132, and the respirations 28 in the minute. Gradual recovery took place, but there was pain in the region of the heart for six days. During the first twenty-four hours after the cocaine had been given there was diminution of the amount of urine; there was also sleeplessness for thirty hours, and complete loss of appetite for four days. The patient was treated with large doses of opium, but no appreciable effect was observed.

In another case, where one grain and a quarter was injected for an acute attack of sciatica, there were soon great uneasiness and excitement, with a lively but constantly changing expression of countenance. There were choreic gesticulations with the hands; the pupils were irregular, the pulse very frequent, and the breathing rapid. Opium given in small doses was not of much benefit to the patient. Recovery did not ensue till four days after the poisoning, and even then the patient was restless and had a tendency to giddiness.

In a third case, a boy aged thirteen years received about one grain and a half at the side of a sebaceous cyst which was about to be excised; twenty-five minims of a solution of two grains in thirty-five minims of water were actually given. In five minutes the patient became pale and restless, so that the operation was rapidly performed. Dyspnœa ensued, and the pulse-rate rose to 120, while the restlessness increased, and the patient wrung his hands. The heart's action was very much disturbed, the pulse becoming so rapid as scarcely to be felt at the wrist; the respirations were frequent and irregular. In three-quarters of an hour there was nausea, with eructations and pain in the epigastrium. Brandy was administered, and the epigastrium rubbed. In four hours the patient was quite well. It was noticed that at the time of the operation the anæsthesia was not complete.

It is evident from these cases that any dose above one grain, whether injected into the gums or under the skin, may give rise to serious symptoms, happily, however, not fatal. The case of poisoning with one-seventh of a grain mentioned above was undoubtedly due to some idiosyncrasy on the part of the patient; the other cases of poisoning with doses above a grain tend to confirm Decker's statement that no dose over three-quarters of a grain ought to be administered hypodermatically. Indeed, it is not as a rule necessary to use a larger dose than this; if judiciously directed, the injection may be so made that complete anæsthesia will be obtained over a large area with even half a grain. The object is to obtain local anæsthesia without producing any of the general physiological actions of the alkaloid. In some cases the advent of poisonous symptoms seems unavoidable, and the question arises, What is to be done?

Morphine is to some extent an antagonist to cocaine, as it is to atropine; but no beneficial results appear to follow the administration of opium or morphine in cocaine-poisoning, even in large doses. Nitrite of amyl has been recommended as an antidote; it dilates the peripheral vessels, while cocaine contracts them. In cases of poisoning, however, it does not appear to have been of much use. The chief symptoms in severe cocaine-poisoning are referable to the nervous system; these are unconsciousness and convulsions. The latter, which are clonic in character, are cerebral in origin, since they are not produced in animals if the spinal cord be divided. However, death occurs either from respiratory paralysis, or perhaps more frequently from tetanus of the respiratory muscles. Cocaine, in fact, acts upon the central nervous system from above downward; it first affects the cerebral hemispheres, then the medulla oblongata, and finally the spinal cord. Chloral hydrate antagonizes all the actions of cocaine, except the rise of temperature. Although chloral itself produces a great fall of body temperature, it does not counteract the rise produced by cocaine. In poisoning by this alkaloid, Mosso, as the result of numerous experiments, advises the inhalation of ether or chloroform; in this way death by respiratory tetanus is prevented. When the patient is recovering somewhat, chloral in small doses may be administered. But prevention is better than cure; and there is no doubt that as great care ought to be taken in using cocaine for its local anæsthetic effect as in the exhibition of any other powerful drug, and especially is this the case when it is injected hypodermatically.—*British Med. Journal*, Feb. 9, 1889.

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SATURDAY, MARCH 9, 1889.

ERADICATION OF TUBERCULOUS DISEASE OF THE HIP-JOINT.

Gradually the evolving knowledge of joint disease and its pathology is being further elaborated into special applications and techniques for each individual joint. Heretofore the knee has had devoted to it a great amount of study and literature, but at present the hip is pressing more to the front —the operative treatment of the former having reached a high state of perfection.

An ideal result in the treatment of tuberculous disease of the hip-joint which has reached a stage justifying operation would be to open the joint, remove every particle of neoplasm, and secure primary union without drainage, with perhaps preservation of fair function of the articulation.

Such result Mr. Barker, *Lancet*, January 19, 1889, would seem to have attained in a series of cases by adherence to a technique which he describes, and by means of which he is confident of equally good results in a large proportion of all cases—more especially when, made bold by the assurance of good results, we may feel justified in operating at so early a time in the course of disease as we could desire. For realization of this are necessary: most rigid and perfect asepsis, complete exposure of the joint cavity and eradication of every particle of tuberculous material therefrom, together with avoidance of manipulation, and subsequent protection from infection.

Before incision the joint surroundings and everything liable to come in contact with it are made scientifically clean. After incision no antiseptics are used: nothing but an abundance of hot sterilized water, except just before closure of the wound it is to be mopped out with antiseptic solution and a little iodoform sprinkled over its surfaces. The incision used by Barker is that which was proposed by Heuter, of Greifswald, in 1878, which incision we think likely to become the accepted one for exploration or excision of the joint in question. It commences upon the front of the thigh half an inch below the anterior superior spine of the ilium and continues downward and a little inward for a distance of about three inches. In following this line the knife sinks between the tensor vagina femoris and glutei muscles on the outside and the rectus and sartorious upon the inner side; thus readily gaining ample access to the capsule without dividing any muscular fibres or other important structures. The joint opened and all purulent material washed away by a powerful stream of hot water, the neck of the femur is divided with a narrow-bladed saw in the direction of the cutaneous incision, and the head of the bone lifted out. Now begins the really vital part of the operation—the eradication of all remaining tuberculous material. The whole joint cavity is most thoroughly scraped or gouged out with what the author calls "flushing gouges." These Mr. Baker has invented for the purpose, although applicable to an infinitude of other uses and destined to become most valuable implements: consisting of the usual spoon gouge or curette mounted upon a long hollow handle having connection with a large elevated can of hot water by means of rubber tubing.[1] As soon as diseased tissues are cut away by the curette they are immediately flushed out and carried away by the powerful stream of water at all times rushing through the instrument.

It now simply remains to mop out the cavity with some powerful antiseptic, to sponge it dry and to dust lightly over the exposed surfaces a little crystalline iodoform, and to suture the wound edges firmly in contact without provision for drainage. Over this is placed a large antiseptic dressing so bandaged as to make uniform firm pressure upon all parts surrounding the wound, and the limb is abducted and placed upon a Thomas' splint. Theoretically a "cavity" remains, but practically it will be found that the wound surfaces are all in contact upon completion of the dressing. The dressing is to remain

[1] These irrigation curettes have been independently invented described and used by Auvard (Archives de Tocologie, No. 10, 1888).

on until the wound heals (which it should do in a very few days if we are to be successful); the splint for about three months, when the patient should be let run about without appliance.

A case is cited by Barker where a boy æt. five had developed abscess and other serious hip-joint disease in spite of a year's treatment upon a Thomas' splint. He excised the femoral head as above, secured primary firm union in ten days, and had the lad running about within as many weeks. At the time of writing his paper (six months after operation) the boy had no sign of disease about the joint, some motion, and but an inch of shortening.

If these brilliant results are as easy of attainment to all as they have been to Mr. Barker and his colleagues, verily a new era in the surgery of the hip-joint is at hand.

STATE REGULATION OF MEDICAL PRACTICE.

THERE appear to be a general repugnance to, and suspicion of, "mixed boards" for the regulation of medical practice, as a result of compromise legislation by the different States; yet it must be admitted that they do not always work badly. It is even claimed, in the instance of the Illinois board, that its efficiency has not been diminished, but rather enhanced by the commingling of regulars with irregulars in the administration of the medical-practice act; in that board there are not only a homœopathist and an eclectic practitioner, but also two laymen.

No one at all familiar with the achievements of this board will refuse to acknowledge that it has done much for the purification of medical practice in Illinois, in the face of very serious obstacles and of an exceptionally strong body of empirics. So many quacks were driven out of Illinois into adjoining territory that other legislatures have been impelled in self-defence to adopt similar laws, and there is very good reason for believing that the country at large has reaped this benefit, that the adoption of quackish practice as a means of livelihood has been discouraged, and that the proportion of "unqualified" practitioners is lower than at any former period of our history. Add to this the fact that in these States the standard of qualifications is not stationary, but is constantly, though gradually rising; and, as a result, the percentage of rejections by the colleges is rising also. The inferior class of students will find it more and more difficult to stand the tests, and will be forced to select other pursuits in life than that of medicine.

In Illinois, after two more years, a further advance has been provided for in the addition of a fourth year of professional study to the three that are at present required. A medical college "in good standing" will then be defined as one that requires four years of study under a preceptor and an attendance upon three full courses of college instruction as conditions of graduation. This new order of affairs will take effect after the close of the college session of 1890–91, and many of the schools are already so framing their curriculum that their graduates may be able to conform to the prospective standard raised by the "mixed board" of the Prairie State.

AT the meeting of the Trustees of the University of Pennsylvania, held last Tuesday, the following appointments were made: Dr. De Forest Willard, Clinical Professor of Orthopœdic Surgery; Dr. George A. Piersol, Professor of Histology and Embryology; and Dr. Samuel G. Dixon, Professor of Hygiene.

It is reported that the Trustees have under serious consideration the advisability of adding in the near future a compulsory fourth year to the medical curriculum.

It is stated that Mr. Henry C. Lea has given $25,000 to the Laboratory of Hygiene of the University of Pennsylvania on condition that an equal amount be obtained from other sources, and that a goodly proportion of this additional sum has been already raised.

The lectures on hygiene and laboratory work next year will be obligatory upon the first year's students at the University.

PRESIDENT GILMAN, in his address on Commemoration Day (February 22) at Johns Hopkins University, said that if $100,000 were added to the accumulated income remaining in the hands of the Trustees, that the University for the ensuing three years would not be hampered in its resources. More than half this sum has already been definitely pledged.

ACCORDING to the *New York Medical Journal*, at a special meeting of the Medical Faculty of Harvard University, held on February 23d, it was announced that Dr. Henry F. Sears had offered to present the school with $40,000, for the purpose of erecting a

pathological and a bacteriological laboratory. The matter was referred to a special committee. The plan proposed is to build a two-story annex to the present building, one story to be devoted to pathology, and the other to bacteriology, and to fit up a gymnasium for the students in the basement.

A BUILDING site of 75 feet by 100 feet, with the privilege of an additional 25 feet, it is stated, has been secured on West Forty-third Street, near Fifth Avenue, for the new building of the New York Academy of Medicine.

WITH the wish to promote research in certain departments of physiology, and to aid in defraying its cost, a member of the American Physiological Society has offered two hundred dollars for the best research or researches bearing on one or more of the subjects stated below, viz.:

"The rate of transmission of nerve impulses, afferent and efferent, and the duration of reflex and reaction time in the higher animals, especially man; also the conditions, normal and pathological, which alter such rates and times."

The competition is limited to residents of North America, and the prize will be awarded for original work done after January 1, 1889. The award will be made by those persons who, on October 1, 1890, constitute the Council of the American Physiological Society. In making its award, the Council will take into consideration researches of which printed or legibly written accounts, marked on the outside "Nerve Physiology Prize," have been received by the then Secretary of the Society before October 1, 1890.

To obtain the prize, a research must have a direct bearing on human physiology, and good researches on man will be preferred to similar researches on other animals; but experiments on mammals other than man, if applied to the interpretation of the phenomena of the human body and supplemented by observations on man, will have weight. Previous publication will not debar a research from the competition, provided the work has been done after January 1, 1889.

The Council reserves the following rights: to withhold the prize if, in its opinion, no research presented is sufficiently worthy; to award only a part of the prize if, in its belief, a research, though meritorious, does not deserve the whole; to divide the prize between two or more candidates in ratios which seem to it just; and if it think it desirable, to require a competitor to demonstrate his experiments to a committee appointed by the Council.

For the present, communications concerning the prize should be addressed to H. Newell Martin, Secretary, Johns Hopkins University, Baltimore, Md.

The Eighteenth Congress of German Surgeons will be held at Berlin on April 24 to 27. Professor von Esmarch will open a discussion on the etiology and diagnosis of carcinoma, especially that of the tongue and lips. An effort will be made to collect the statistics of cases of carcinoma of the tongue, intestine, and stomach, in which more than three years have elapsed since the first operation and in which there has been no recurrence of the disease.

BY the will of the late Alexander Murray, of Montreal, the General Hospital of that city will receive the sum of $750,000. This is the largest gift hitherto made in Canada for any public charity, with the exception of the joint donation of Sir Donald A. Smith and Sir George Stephen of a million dollars for the founding of the Royal Victoria Hospital, also of Montreal.

DR. DAVID FERRIER has been appointed Professor of Neuro-pathology in King's College, London, and has resigned the Chair of Forensic Medicine in the same institution. It is stated that some provision will probably be made for supplying Dr. Ferrier with the means of carrying on pathological and physiological research in connection with this chair.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 13, 1889.

THE PRESIDENT, W. W. KEEN, M.D., IN THE CHAIR.

DR. W. W. KEEN read a preliminary report on a case of

TAPPING AND IRRIGATION OF THE VENTRICLES.

Last fall he made a proposition for tapping the lateral ventricles. At that time he was not aware that the procedure had ever before been suggested, but he has recently learned that, in 1881, Wernicke suggested it in a general way, and by the lateral route. He, however, first formulated general rules, which have stood the test of actual trial. The operation, he believed, was never performed until he did it in a case of marked choked disk on both sides, with complete blindness dating from last

Christmas, which he had the opportunity of seeing through the politeness of Dr. Strawbridge. He tapped the ventricle five weeks ago last Friday, reaching it by the lateral route, at a depth of one and three-fourths inches from the dura mater. A half-inch trephine opening was made, a crucial incision in the scalp and dura being employed, as he intended to keep up drainage. From two to four ounces of cerebro-spinal fluid escape from this opening daily.

The case was examined from day to day to see the effect on the swelling of the optic disks. Before the operation this amounted in one eye to 2.3 mm. and in the other to 1.8 mm. After the operation, it eventually fell to 0.83 mm. on each side. At the end of a week the horse-hair drain, which was introduced at the time of the operation, was substituted by a rubber drainage tube passing into the ventricle. The discharge then became freer, amounting from four to eight ounces per diem.

In addition to this, he explored with a probe the occipital lobe on the left side, twice to a depth of three and a half inches, but found no tumor. He then made a small opening by a gouge under the cerebellum on the left side, and explored the left lobe, and then passed obliquely into the right side, but no tumor was found.

On February 8th he trephined the child on the opposite side, thinking that there might be a tumor in the posterior lobe on that side, but he found none, though he touched the tentorium and the falx. He then tapped the lateral ventricle on that side. On February 12th he washed out the lateral ventricles, passing about eight ounces of a solution of boracic acid (four grains to the ounce) from one side to the other. There was some little irritation resulting from the manipulations, but the moment the warm solution began to pass through the ventricles the child settled itself into a position of complete comfort.

He exhibited a bottle of the cerebro-spinal fluid, which had been standing on his desk for a week. There were no signs of decomposition. The fluid contained both sugar and albumin. This, with its continuous flow, proves it to be cerebro-spinal fluid. The child did not suffer any notable rise of temperature after any of the operations, with the exception of the last one, when there was a temporary sharp rise to 104°.

CORRESPONDENCE.

THE MODUS FACIENDI OF THE PASTEUR METHOD AGAINST HYDROPHOBIA.

In a preceding article, on the inauguration of the Pasteur Institute, I gave a very superficial description of the different departments which, at present, constitute this institution. To-day I intend to examine more carefully one of the most important of these departments, the one which has attracted the attention of the scientific world for several years past, namely, the section devoted to the treatment of hydrophobia. Considering rapidly the statistics, I shall next give in as detailed a manner as possible, a full description of the method of preparation of the virus of different strengths employed, and the *modus faciendi* of the inoculations.

Very much has been said and written for and against M. Pasteur's method since the time he made his first communication to the Académie des Sciences, in October, 1885, when he presented the results of his first and successful inoculations performed on the young shepherd Meister, who had been most seriously bitten by an hydrophobic dog.

I shall not attempt to make a critical study of all that has been written against this method, as most of these articles, if carefully examined, show that their authors, even amongst Paris physicians, are nearly, if not entirely, ignorant of the practical application of the method, having never seen it applied, not having followed its results, not even knowing the kind of virus used for inoculations, for I have myself met several of these violent contradictors who were convinced that men were inoculated directly from the virus just obtained from the cerebrum of a dog which had just died from hydrophobia—which is far from being so.

Some have objected to the method, since a certain number of patients, who were inoculated to prevent the development of the disease, died anyhow. Is there a physician or a surgeon who can mention one single method of treatment which, applied to a particular disease, would give him a percentage of favorable results equal to 100 per cent.? I am afraid not. Others have gone so far as to say that the inoculations produced the disease. In no case has it been found, up to now, that such has been the case, and that one person should have died as a result of a previous course of inoculations. There is an experimental test to prove this fact, which I shall give further on, when the method of preparation of the virus shall have been described.

In this connection, however, I might mention this interesting fact, that most of those who are engaged in the experiments connected with the scientific researches of hydrophobia have inoculated themselves as a preventive against the danger which might arise from a manipulative wound—among these are M. Pasteur's able collaborators who have undergone these inoculations, and who, luckily for themselves and for the scientific world, have not had to regret it.

Let us now come to the statistics of the Institute, and compare the percentage of deaths by hydrophobia before and after the introduction of the new method.

The rate of mortality for ordinary bites or those made through clothing, was agreed in every country as varying from 10 to 20 per cent., while the percentage of deaths from bites involving the exposed parts, face and head, was recognized as being from 80 to 88 per cent.

The following are the statistics of the Pasteur Institute:

In 1886, 2682 persons were inoculated, with a death-rate of 1.34 per cent.

In 1887, 1778 persons were inoculated, with a death-rate of 1.12 per cent.

In 1888, first six months, 914 persons, with a mortality of 0.77 per cent.

These percentages contain even the cases of persons who died on the second day of the treatment, and it has been asserted by Dr. Gamaleia, of Odessa, and Professor Grancher, of Paris, that the treatment is of no avail if begun when the virus has already reached the nervous centres. Their assertion is founded on the following experiment: if one inoculates directly on the surface of the cerebrum of a healthy dog the nervous matter obtained from the cord of a rabid dog, although the virus is placed immediately in contact with the cerebral surface, the first symptoms of the disease will present them-

selves only from the fifteenth to the eighteenth day after inoculating. Admitting this to be the case in the human subject, and if we deduct from the above table all those who have died within fifteen days after the beginning of the treatment, the percentage comes down to

0.93 per cent. . . . . in 1886.
0.67 per cent. . . . . in 1887.
0.55 per cent. . . . . in 1888.

An interesting and practical proof of the value of the method is illustrated by the following fact:

In Naples, from September, 1886, to January, 1888, 199 persons were inoculated, with a percentage of deaths of 1.58 per cent. In January, 1888, the municipality refused financial aid to the inoculating institution, which, therefore, was closed, and remained so until September, 1888. During this period of nine months, nine deaths occurred in non-inoculated persons from hydrophobia. The municipality then immediately asked the director of the institution to reopen it.

A medical journal of Vienna, the *Wiener medicinische Presse*, said in one of its articles that, contrary to what Professor Grancher had asserted in his speech, no antirabic institute existed in Vienna. This paper, however, is quite mistaken, for Dr. Uhlman, a physician who has occupied himself with this method in the Austrian capital, wrote to M. Pasteur, on November 19th, that from September, 1887, up to date, he had inoculated thirty-one persons, who all remained perfectly well.

Finally, what better proof of the success of the method can one give than to mention the following communication which was read lately before the Académie des Sciences, by a foreigner, a Russian, Dr. Odo Bujroid, from Warsaw?

"I begun the antirabic treatment in Warsaw on June 29, 1886, a few days after my return from Paris, where I had studied the method under M. Pasteur from June, 1886, to January 1, 1887. I treated 104 persons bitten by rabid dogs, or suspected to be such. I admitted every person to the treatment, even those whose wounds were slight; I refused only those who had been recognized as having been bitten by healthy dogs. During these six months I applied the *simple treatment* of M. Pasteur, which treatment begins with the inoculation of the cord of fourteen days and finishes with the fifth day cord, only one inoculation a day being made.

"On November 23d I had my first case of death, a boy of eleven years, Arthur Stolay, bitten severely on the exposed right forearm; the treatment was only begun nine days after the bite.

"After this case of death, and influenced by the researches of M. Frisch, from Vienna, in regard to the application of the antirabic treatment, I determined to try a still weaker treatment, and I did not inoculate cords of less than six or seven days old. We know that these cords contain so little virus that Professor Frisch himself recognized them to be devoid of danger.

"As formerly, I admitted to treatment persons who had been lightly bitten, and refused only those who were recognized to have been bitten by healthy animals. During seven months I inoculated in that manner 193 persons, 5 of whom had been severely bitten in the face. As a result of this light treatment I had, notwithstanding the treatment, 8 cases of death by hydrophobia; amongst these were the 5 who had been bitten at the face, and 3 bitten severely on the forearm.

"During the first days of August, 1887, two persons presented themselves who had been very severely bitten on the head and face by a wolf, whose hydrophobia had been experimentally demonstrated by inoculation in a rabbit. As I had observed that in cases of severe bite of the face, the light treatment was of no avail, I applied, for the first time, to these two patients a treatment which differs very little from M. Pasteur's *intensive treatment*.

"I made my inoculations with cords from twelve to three days old, performing these inoculations twice a day, and repeating the series three times.

"First day, morning, cord of twelve days; evening, cord of ten days.

"Second day, morning, cord of eight days; evening, cord of seven days.

"Third day, morning, cord of six days; evening, cord of five days.

"Fourth day, morning, cord of fourth day; evening, cord of three days.

"This series was repeated three times in twelve days.

"One month later I received two persons bitten still more severely by a female wolf, whose bulb had been inoculated in rabbits and produced hydrophobia. The treatment followed was the same as the preceding, but as the outside temperature was very high, and I found that the virulence of the cord is much reduced in hot days, I even inoculated in one case a two days' old cord. These four persons remained perfectly well, as is proven by the letters which I received from the Chief of the District of Chetm (government of Lulin, Russia).

"Since I began this intensive treatment, we have treated already *three hundred and seventy persons, thirty of whom were bitten in the face or head, with not one single case of death*.

"We begin our treatment always with the cord of ten days in summer and twelve days in winter, and complete it with the cord of two days in summer and three days in winter.

"Let me remark that in Warsaw we desiccate the cords at a temperature of 61° to 67° Fah., and in that manner they keep their virulence much more powerful than those which are preserved at 74° Fah., as is ordinarily done.

"Using the method just described, sixteen months have elapsed without one case of failure.

"Actually I make a very rigid choice of the bitten persons; I refuse to treat those who are bitten by animals who were little suspected to be suffering from hydrophobia, or whose clothes show no apparent sign of tear. In this manner I have refused to treat 160 persons, who naturally remained in perfect health.

"The 370 persons who form the last portion of my statistics, have been bitten by animals which were certainly suffering from hydrophobia, and which had inflicted very severe bites.

"In that same period of time which corresponds to my statistics, eight persons not treated have died from hydrophobia in Warsaw or its surrounding districts. This number represents only a part of the cases of hydrophobia non-treated, for it contains only the persons who presented themselves at the institute with the symptoms of the disease already present, and those of whose death we had been notified by persons bitten by the same animal and who had undergone the treatment.

"The application of the *intensive method* has not only proven itself to be devoid of danger, but also to be perfectly efficacious."

We shall take now into consideration the mode of preparation of the virus which is to be used for the antirabic treatment applied to the human subject. The inoculating virus is not derived, as is too often erroneously supposed, directly from the hydrophobic dog, and then injected directly into man; but the medulla of the mad dog is first inoculated in a rabbit; when this animal dies from the disease, another rabbit is inoculated with a portion of the spinal cord of this dead rabbit, and so on, the disease is allowed to pass through a long series of rabbits, until the moment has come when the time of incubation of the disease can be no more reduced, and that is, when the symptoms of hydrophobia make their invariable appearance on the seventh day, and the animal dies on the tenth from the paralytic form of the disease. Now is the time when the spinal cord of this rabbit is taken and prepared, as we shall describe further on, for the production of the virus for inoculations.

Passing next to the details of the manipulations. The first step is the removal or extraction of a certain amount of the nerve tissue from the brain of the hydrophobic dog. To accomplish this, the dog is placed on his abdomen, and, while an assistant steadies the head with a strong pair of forceps, the operator, after having removed the skin from the head, opens the skull with bone forceps. The brain and medulla are then carefully removed and placed on a previously sterilized plate, the lower surface of the brain directed upward.

We do not think it superfluous to recommend to the operator the utmost care while he is handling the anatomical pieces; in fact, his hands need never touch any of the brain during the extraction. The slightest abrasion on a hand or finger might be the starting-point of the inoculation of the disease. As I have already said, certain experimenters, to do away with the continuous fear of accidental inoculations during their experiments, have preferred to undergo a course of preventive inoculation.

For safety, it would be well to wrap the dead rabid animal in an antiseptic linen or paper, as is done at the Pasteur Institute; but *antiseptics must not* be used to render the instruments aseptic, or anything that comes in contact with the nerve matter, for fear of their neutralizing the condition of the tissues. Every instrument, every plate or bottle that is to receive nerve matter, must be sterilized by heat alone, and placed in a sterilizer for half an hour at a temperature of 248° to 266° F.

Returning to the brain of the dog, after it has been placed in the sterilized plate, the next step consists in exposing the floor of the fourth ventricle, from which situation a portion of nerve tissue the size of a pea is taken; to expose the floor the free portion of the medulla is seized with forceps, lifted and turned on the anterior portion of the brain, when the ventricle will be exposed. Two of these fragments are then taken in this situation and placed on a small glass which has been previously sterilized; veal broth is then added, drop by drop, while the operator with a glass rod triturates the small fragments into a pulp. This pulp is stirred continuously until two or three drachms of the broth have been used; two drachms if only two fragments of the size of a pea have been used; three drachms if three fragments have been employed.

The veal broth is prepared by taking one kilogramme (two pounds eight ounces Troy weight) of veal, to which one litre (one quart) of water is added; the bones, tendons, and fat are first separated from the meat and thrown away; while the meat itself is cut into many small pieces. These pieces are then placed in the above-mentioned quantity of water, placed on a very small fire, and stirred continuously until it begins to boil. This broth is then carefully filtered on the ordinary filter paper, and is next placed into small bottles, the mouths of which are closed with cotton-wool. These bottles, with their contents, are next heated to a temperature of 248° F. for one-quarter to half an hour, when all the germs which they may contain have certainly been destroyed.

The virus, prepared as above described, is now ready for inoculation on the first rabbit; the operation is done as follows: The rabbit is fixed on a table, abdomen downward and legs extended on each side, and firmly fixed to the side of the table; he is placed in that position so that we may have easy access to the upper part of the head. Chloroform is now administered, and as soon as anæsthesia is obtained an assistant takes hold of the head of the animal to steady it, while the operator proceeds to the shaving of the operative field, and then makes an incision of three-quarters to one inch in length down to the bone, starting from the centre of an imaginary line uniting the two eyes and extending the incision therefrom upward. The lips of the wounds are then separated by means of hooks by the assistant, while the surgeon applies his trephine at about the middle of the incision. This opening must be at least one-third of an inch in diameter; the disk of bone is next removed, taking great care not to injure the brain membranes. The hypodermatic needle is next introduced through them, and two drops of the virus, prepared as above cited, are introduced after the needle is withdrawn. This external wound is washed carefully with a solution of carbolic acid, 1 in 40, and finally sutured.

The rabbit is then placed in a cage, which is kept very clean; the animal is kept under close watch. This rabbit will, in all probability, show signs of the disease after an incubation of fifteen days and die.

A portion or fragment of this dead rabbit's cord is then taken, prepared in a solution as mentioned above, and inoculated into the arachnoid space of another rabbit; when this newly inoculated one becomes rabid and dies of the disease, a portion of his nerve matter is again inoculated to another healthy rabbit; and so on, is the series continued, and it is found that after the twentieth to the twenty-fifth passage the rabbit shows invariably the signs of the disease on the eighth day. If the inoculation is continued to a still further series of rabbits, say to the fiftieth passage, it is found that the incubation of the disease is reduced to seven days and the animal dies on the tenth. This is the shortest inoculation obtained, for M. Pasteur, after having continued his inoculations to the one hundred and fiftieth passage, still found the incubation of the disease to remain at seven days.

The object of the inoculation of the virus of the rabid dog to the rabbit is not, as is often erroneously believed, to weaken the virus; on the contrary, the cultivation, so

to say, of the virus in the species rabbit, produces an increase in the virulence of the hydrophobia virus so far as one is able to judge by the first described series of experiments on rabbits, for we have seen that the direct inoculation of the virus derived from a hydrophobic dog shows itself in the rabbit after an incubation of fifteen days; while after the disease has passed through forty or fifty rabbits, the inoculation is reduced to seven days.

This increase of virulence is also observed in guinea-pigs, in which species the incubation even reaches five days. In certain other species, however, by a succession of passages from one animal of the same kind to the other, the time of incubation is progressively postponed and the virus therefore progressively attenuated. Monkeys belong to that class; a monkey inoculated with the virus obtained from a mad dog, takes the disease in eleven days, nerve matter taken from the medulla of this monkey inoculated to another monkey makes the disease appear in twenty-three days; and so on, the period of incubation is progressively postponed.

Having obtained, after this numerous succession of passages, a minimum time of incubation in rabbits of seven days, the seventh day rabbit's spinal cord, which by experiment has been shown to be virulent to the same degree throughout, is the one used for the preparation of the virus employed for human inoculation.

If a solution from this fresh cord should however be made, we would have the strongest, the most powerful solution of nerve matter, capable of giving the most severe form of hydrophobia, much worse probably than the one originated through a bite from a hydrophobic dog, as has been shown on lower animals.

The virulence of this cord for human inoculation must be graduated, and M. Pasteur has found that the desiccation of such a cord, by being suspended in a bottle containing caustic potash, can be realized to such a degree, that one can graduate the virulence of such a cord according to the number of days it has been exposed to the desiccating process, from its maximum intensity in the fresh state to its complete neutrality after a certain number of days of desiccation. Temperature slightly influences this process, for it has been found that the cord remains virulent longer in winter than it does in summer.

Returning, after this digression, to the rabbit dying on the tenth day after seven days' incubation, one must proceed to the extraction of the spinal cord. The animal is placed as before on the abdomen, the skin is cut open on the back and removed; the spinal canal is next exposed, by cutting alternately with forceps the spinal processes; when the cord is exposed it is to be freed from its attachment from below upward for about four or five inches, and is removed from the spinal canal.

This portion is then carefully placed on a sterilized plate, and to one end of it a sterilized thread is next attached, which is for the purpose of suspending the cord in the desiccating bottle.

The desiccating bottle holds about one-quarter, is broader than an ordinary wine bottle and has two openings, one at the upper part, the other below and laterally; the object of these two openings is to allow the passage of a draught of air; each one of these openings is kept closed by cotton-wool, as used in bacteriology for closing the test or culture tubes. At the lowest part of the bottle, small fragments of caustic potash are placed, for the purpose of keeping the air absolutely dry. The cord is then introduced by the superior opening, and by its suspending thread is fixed to the sides of the neck of the bottle, while the opening is immediately closed with cotton-wool.

To make the first inoculation in man, the fresh cord is introduced into one of the desiccating bottles and left in it *fourteen* days, after which time it is found to be almost completely dried up, of a blackish appearance, brittle, etc.

Let us suppose that six persons who have been bitten present themselves on the same day for treatment. They will all receive on that first day a solution of a cord which has been desiccated for fourteen days; this is called the "fourteen days' cord." Having six persons to treat, we shall detach about six millimetres in length (one-quarter of an inch) of this fourteen days' cord, and allow it to fall in a small conical sterilized glass. We next, with a sterilized glass rod, triturate this cord and add drop by drop our veal broth, until we obtain a little more than six cubic centimetres (ninety minims), say about seven cubic centimetres (one hundred and fifteen minims). The glass is now covered with a filter paper and the solution is ready for inoculation. One cubic centimetre, or about sixteen minims, of this liquid is introduced into each patient; this is the first day's treatment.

When these six persons present themselves again on the second day, they will receive an injection from the solution of a cord which has remained only thirteen days in the desiccating bottle. On the third day of treatment, the twelve days' cord will be used; on the fourth day, the eleven days' cord; and so on until the third day cord in summer, or fourth or fifth day cord in winter shall have been used.

M. Pasteur first started his method of treatment, by the so-called "Simple treatment," which, as we have just now described, consisted in making one daily injection, beginning by the fourteen days' cord, and finishing by the first day one. As a type of this treatment, we have the history of the treatment of his first patient, the young shepherd, Joseph Meister, who was bitten on July 4, 1885, by an hydrophobic dog, on the hand, legs and thighs; he received fourteen wounds. Professors Vulpian and Grancher, having been called in by M. Pasteur, expressed their opinion that according to the severity, seat, and number of his wounds, this young boy was almost certainly condemned to be taken with the disease and die. M. Pasteur, after having narrated the results of his researches to the above named professors, was encouraged by them to use the inoculations, which from that day were made by Prof. Grancher—M. Pasteur not being a physician.

This young man was bitten on July 4th, at 8 A.M., and his treatment was begun only on July 6th, at 8 P.M. The whole treatment of the case was as follows:

On July 6th,	8 P.M.,	½	c. cm. (8 minims)	of the	15	days' cord.
" 7th,	9 A.M.,	½	"	"	14	"
" 7th,	6 P.M.,	½	"	"	12	"
" 8th,	9 A.M.,	½	"	"	11	"
" 8th,	6 P.M.,	½	"	"	9	"
" 9th,	11 A.M.,	½	"	"	8	"
" 10th,	11 A.M.,	½	"	"	7	"

On July 11th, 11 A.M.,	½	c.cm. (8 minims)	of the	6 days'	cord.
" 12th, 11 A.M.,	½	"	"	5	"
" 13th, 11 A.M.,	½	"	"	4	"
" 14th, 11 A.M.,	½	"	"	3	"
" 15th, 11 A.M.,	½	"	"	2	"
" 16th, 11 A.M.,	½	"	"	1 day	cord.

This young man is doing well to-day, and the inoculations have not given him the disease, although the same solutions used on him of the 6th, 5th, 4th, 3d, 2d, and 1st days, have invariably given hydrophobia to the rabbits to which they were injected; the 1st and 2d day cords, produced the disease in rabbits on the seventh day; the 3d and 5th day cords produced it on the eighth, and the 6th day cord on the fifteenth day.

To-day M. Pasteur has entirely given up the so-called "simple treatment," and resorts exclusively to the "intensive treatment," in which the cords of one and two days are no more used, M. Pasteur having found that the 3d day cord in summer, and the 4th and even the 5th day cord in winter, had the same strength as the one day cord. The intensity of the treatment is in accordance with the severity of the bites, the treatment being more severe for bites of the exposed regions, face, head, and hands, and much less so for bites of parts protected by clothes. The description of the intensive method, as given by M. Pasteur in his communication to the Académie des Sciences, in October, 1886, was as follows:

"On the first day of treatment, for persons bitten on the face or head, the cords of twelve, ten, and eight days will be inoculated successively at 11 A.M., 4 P.M., and 9 P.M. On the second day, the cords of six, four, and two days at the same hours; and on the third day, the first day cord. The series is then taken up again on the fourth day, the cords of eight, six, and four days; on the fifth day, the cords of three and two days; on the sixth day, the one day cord; on the seventh, a cord of four days; on the eighth, a cord of three days; on the ninth, a cord of two days; on the tenth, a one day cord." This treatment, in three series, is done in a period of ten days.

The inoculations are performed at the Institute Pasteur exclusively; every one who desires to undergo the treatment must come to the Institute.

For nearly two years the inoculations were made by Prof. Grancher, of the Paris Faculty of Medicine; while he still superintends this service, the inoculations are now performed by Dr. Chantemesse and Dr. Charin.

On the physician's table very few instruments are to be found; a series of hypodermatic syringes which, needless to say, have been previously well sterilized, then a flask of hot water, kept continuously at the boiling temperature, and containing suspended in it a test tube filled with oil; this hot oil is for the purpose of dipping into it the hypodermatic needle, immediately before each inoculation, to sterilize it perfectly. On the same table we find a vase containing a solution of an antiseptic, carbolic acid usually, which is for the purpose of washing the parts before the injection is made.

The injections are made into the abdominal wall, right and left hypochondriac regions alternately, to prevent too great irritation of the injected parts. Sometimes local inflammation is produced, slight swelling and redness are observed; the patient is immediately ordered to take a full hot water bath, which in the great majority of cases will remove this slight annoyance.

The patients are divided into a certain number of sections, according to the number of days they have been under treatment. The physician always begins to inoculate first those who present themselves for the first time, and who, therefore, receive the weakest virus; and always ends by those who receive the most powerful virus. The reason for this lies in the fact that, by injecting the weaker virus first, there is no danger for the next series of patients, if some of this virus should remain by mistake in the hypodermic syringe; while, on the contrary, if the inoculations were begun by the stronger virus, there would be danger for the next series, who would not be ready for the strong virus in case some of it remained in the syringe.

The solution of virus is contained in a corresponding number of glasses, as there are different cords to be inoculated, and each one is covered and closed by filter paper; the syringe is filled by passing the needle through the filter paper, which precaution prevents the virus from being contaminated by impurities of the atmosphere. The quantity of virus injected is one and a half cubic centimetres, or twenty-three minims, at each inoculation made with the *weaker* virus; but only one cubic centimetre, or fifteen minims, of the *stronger* virus is injected at one time

Before closing, let me refer to the experimental test, that exists to assure us that a person will not die from the effects of inoculations, as has often been proclaimed against the method.

If the fragment of a cord, obtained from a dead hydrophobic rabbit, from the same that will be used to prepare the human virus, is inoculated to a healthy rabbit, this animal will present symptoms of the disease on the seventh day, and die on the tenth.

If, instead of inoculating this fragment of cord in a rabbit, it is inoculated in a dog; this dog will present the first signs of the disease, not on the seventh day, but on the twelfth day, and die shortly afterward.

The test lies in the following experiment: If a fragment of the cord of this dead dog is inoculated anew in a rabbit, this animal will take the disease on the seventh day and die on the tenth; showing that the rabbit virus has really been the cause of death in the dog; while if the rabbit had been inoculated with the cord of a dog which died from the ordinary street hydrophobia, he would only have shown signs of the disease on the fifteenth day.

This test has been applied to every dead person who had been inoculated, and has never shown that any of them had died from the result of rabbit hydrophobia.

ARTHUR V. HUGENSCHMIEDT, M.D.

NEWS ITEMS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 26 TO MARCH 4, 1889.

By direction of the Secretary of War, WILLIAM O. OWEN, Jr., *Captain and Assistant Surgeon*, is relieved from duty at Fort Leavenworth, Kansas, and will report in person to the commanding officer Fort Gibson, Indian Territory, for duty at that post, relieving Captain and Assistant Surgeon C. N. B. Macauley, who, on being so relieved, will report in person to the commanding officer Fort Leavenworth, Kansas, for duty at that post.—Par. 3, *S. O. 48, A. G. O.*, February 27, 1889.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ACUTE PANCREATITIS.

A Consideration of Pancreatic Hemorrhage, Hemorrhagic, Suppurative, and Gangrenous Pancreatitis, and of Disseminated Fat-necrosis.

The Middleton-Goldsmith Lecture for 1889, delivered before the New York Pathological Society, Feb. 16, 1889.

BY REGINALD H FITZ, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY IN HARVARD UNIVERSITY AND PHYSICIAN TO THE MASSACHUSETTS GENERAL HOSPITAL.

(Continued from page 262.)

GANGRENOUS PANCREATITIS.

BUT the subject of acute pancreatitis deserves attention from another event, viz., its possible termination in gangrene. The earlier medical writings contain occasional references to gangrene of the pancreas, but the evidence presented is so slightly objective as to make them of but little value for present needs.

Grisellus,[1] for instance, has been generally considered to have called attention to this matter.

His patient, a man forty-two years of age, suffered from frequent colic, which was easily relieved. He was suddenly, without cause, seized with a chill and severe colic, and died quietly in the course of eighteen or nineteen hours. The post-mortem examination showed an extreme quantity of abdominal fat. The pancreas was found sphacelated, in a large mass of fat. "In whose absence nature had supplied another like round mass, on the right toward the liver and attached to the sphacelated part. Veins ran through the middle, like Wirsungian ducts, but without order. This sphacelated pancreas distributed a like contagion, penetrating not only adjacent parts, but even the diaphragm, consuming the left lobe of the lung as in phthisis." The liver is said to have resembled grumous blood, in color and in substance. There were several calculi in the gall-bladder. "Other membranes were adherent at the bottom of the gall-bladder, and held another stone larger than all."

Although the evidence does not permit an exact diagnosis to be made, it would seem as if the sufferings and death of this individual were rather attributable to biliary calculi than to pancreatic disease. The penetration of the diaphragm and the consumption of the left lung suggest that post-mortem softening of the stomach may have aided in producing the described appearances. The clinical history, brief as it is, affords quite a different picture from that to be presented as connected with pancreatic gangrene.

Bonetus[2] credits Barbette with stating that in a case of obstinate vomiting the pancreas was found wholly putrid, rather sphacelated. Again,[3] he refers to the statement of Verzaschka that Glaserus found a semi-putrid pancreas in a case of dropsy.

Bonetus himself[1] records a case of dropsy in a boy in whom the pancreas is stated to have been semi-putrid.

In Lieutaud[2] there is extracted the case of a woman with obstinate vomiting, severe renal symptoms, and pubic pain, in which the pancreas was semi-putrid, almost destroyed.

Also[3] that of a girl with swollen abdomen, hypogastric pain, purulent urine, and diarrhœa. The omentum and a large part of the mesentery were rotten. The liver filled almost the entire abdominal cavity. The pancreas was putrid, and the whole left kidney purulent.

Again,[4] in an infant, with dropsy, there were found a putrid omentum and pancreas. He reports[5] that Helvigius found a sphacelated pancreas, omentum, and mesentery, also a shrivelled and putrescent liver, with a gall-bladder containing more than a hundred calculi, in a man sixty years of age, who was seized with gastric pain, obstruction of the liver, and dyspnœa; there were black jaundice and œdema of the legs.

He also[6] refers to a case of extreme dilatation of the bile-duct, where the head of the pancreas was swollen, dense, scirrhous, and pressed upon the opening of the cystic duct. The left portion of the pancreas was putrid. Finally, he credits[7] Bonetus with reporting a case of oft-recurring, obstinate, tertian fever, in which the pancreas and mesentery were found somewhat corrupted and sanious.

Schmidtmann[8] speaks of finding induration of the pancreas with inflammation and beginning gangrene in a case of chronic, suppurative nephritis with destruction of the bladder.

The case reported by Portal[9] is perhaps the first which demands recognition as illustrating the relation of pancreatic gangrene to hemorrhagic pancreatitis. He writes as follows:

"Gangrene of the pancreas is the frequent result of inflammation. I have found it in several corpses, and especially in that of a merchant of St. Denis Street, who, during a period of more than two years, suffered from severe attacks of colic. They were deep-seated, below the navel, and were often preceded or followed by nausea or vomiting. There was neither swelling nor induration of the lower abdomen; no dryness of the tongue, nor thirst. He became much emaciated, the pains increased, the pulse quickened, the heat of the skin became acrid and very strong. The slightest touch of the lower abdomen became very painful. The urine was scanty and red. This state lasted some twenty days, when the patient died unexpectedly. I was present at the autopsy. The pancreas was violet-red and soft, a black moisture

[1] Misc. cur. Med. phys. Acad., etc., 1681, Ann. iii. 65.
[2] Sepulchretum, 1700, lib. iii. sec. viii. obs. 54, vol. ii. 113.
[3] Op. cit., ii. lib. iii. 478.
[1] Op. cit, ii., liv. iii. 415.
[2] Op. cit., i. 34.
[3] Op. cit., i. 62.
[4] Op. cit., i. 64
[5] Op. cit., 183.
[6] Op. cit., i. 236.
[7] Op. cit., i. 246.
[8] Hufeland's Journ. d. pr. Arzneykde, 1799, vii 4te St. 16.
[9] Anat. Med., 1803, v. 353.

escaped from its surface, it was almost wholly gangrenous. The stomach and the duodenum appeared inflamed in places."

Although the above case is probably one of the disease now under consideration, the lack of detail in the clinical statement and account of the anatomical appearances makes it value rather historical than useful in determining the relations of the hemorrhage to the gangrenous affections of the pancreas.

Gendrin[1] reports a case which is likely to belong to the series, but which is deprived of a considerable part of its possible value by the lack of sufficient details, clinical as well as anatomical. He states, "we have seen a vast cavity in the region of the pancreas communicating with the jejunum, which was perforated an inch from its origin. The pancreatic tissue was lost in a dense, friable, reddish mass which formed the wall of the cavity, which was filled with a grayish, very fetid pus. The surrounding cellular tissue and the intestinal walls united in forming this suppurating tumor.

The following fifteen cases of pancreatic gangrene represent all, with the above possible exceptions, I have been able to collect. Twelve of them have been observed in the past eight years, five of them have occurred in Boston or its vicinity, and three of them are now published for the first time.

Case LVI.—Male, aged sixty-three. Always well. For sixteen days gastric disturbance, vomiting. Now pale, cachectic, thin; yellow, bitter vomit. Epigastrium somewhat distended, tense, tympanitic, sensitive. Abdomen elsewhere moderately swollen. In the evening repeated nausea, vomiting, great prostration, collapse, violent epigastric pain, thence extending over whole abdomen. Traces of blood in vomit. No albuminuria. Death, after rapid collapse, on the eighteenth day. The pancreas a thin, flabby, friable, grayish band soaked in fluid. It lay in an ichorous cavity, bounded by the posterior wall of the stomach, spine, spleen, and duodenum, and communicating with the stomach by three openings in its posterior wall. The pancreas was united in front by a few shreds to the omental bursa. Its cells were either disintegrated, or swollen, or opaque. Certain lobules were separated from each other, in part collapsed, with intervening molecules and fat-drops. Pus-cells were present. Splenic vein obstructed by a dark-red thrombus extending to the portal vein.—Haller and Klob. *Zeitschr. d. k. k. Ges. d. Aerzte zu Wien.*, 1859. xv. 577.

Case LVII.—Male, aged fifty-two. Digestive disturbances for two months, with decided emaciation. Sudden, severe colic. After several days a diagnosis of gall-stones by Oppolzer. The attacks were repeated for three or four weeks, when eighteen gall-stones were discharged. Three days later another intense attack with vomiting; prognosis grave. On the following day a slough discharged from the bowels. Recovery in three weeks, and the patient well seventeen years later. Rokitansky examined the slough and recognized it as the sequestrated pancreas.—Trafoyer, 1862. v. Chiari. *Wiener med. Woch.*, 1880, xxx. 139, 164.

Case LVIII.—Female, aged fifty-four. Corpulent, alcoholic. For several years gastric pains and occasional vomiting after meals. Irregular defecation. Stools often black. A few attacks of jaundice. Violent pains in region of stomach. Slight jaundice and fever. Swollen abdomen, painful epigastrium, nothing abnormal on palpation or percussion. Bedsore in the course of three weeks. Acute parotitis in the fourth week. In the last weeks failing appetite, increasing debility. Death after a short agony, the illness lasting seven weeks. Pancreas cylindrical, brownish-black, shreddy, and friable. It lay in the omental cavity, which formed a spacious pus-cavity, the walls densely fibrous with purulent infiltrations of the innermost layers. The liquid contents an offensive black fluid. A round ulcer of the stomach opened into the cavity; there was also a second opening between the two, and five openings into the jejunum. There was a thrombus in the splenic vein, and necrosis of fat-tissue.—Chiari. *Wiener med. Woch.*, 1876, xxvi. 291.

Case LIX.—Male, aged thirty-eight. Biliary colic a year ago. Slight, nocturnal abdominal pain for ten days, not interfering with occupation. It then became more severe, with sensation of twisting in left gastric region. On the fourteenth day suddenly awoke with persistent vomiting, followed by a dejection. Violent gastric colic. Soon anxiety, collapse, the epigastrium swollen, tense, sensitive. For a few days signs of intestinal obstruction, the abdomen swollen, the epigastrium sensitive. No fever. After repeated enemata an offensive stool and improvement. At the end of a fortnight a sudden febrile attack lasting three days, with symptoms of stenosis. After a fortnight a slough was discharged from the bowels. Recovery in five weeks, the entire illness lasting some twelve weeks. The slough proved to be the larger part of a gangrenous pancreas.—Chiari. *Wiener med. Woch.*, 1880, xxx. 142.

Case LX.—Female, aged forty-six. Strongly built, abundant fat-tissue; often suffered from cramps of the stomach. Severe abdominal pains for some days, frequent vomiting. Signs of a general peritonitis. Slight jaundice. After a chill, copious, black, offensive vomit, which continued till death. Duration of disease some three weeks. Pancreas dark brown, friable, lying attached only by a few rotten, fibrous threads in the omental cavity. The latter contained also abundant, ichorous, bloody fluid, and communicated with the duodenum and transverse meso-colon. Purulent infiltrations of the mesentery. Necrosis of fat-tissue. Numerous calculi in the gall-bladder. General peritonitis. The microscope showed merely remains of the pancreatic acini, but no evidence of hemorrhage.—Chiari. Loc. cit., 139.

Case LXI.—Female, aged twenty-seven. Typical case of diabetes. A year in the hospital under treatment. No particulars given. Head of the pancreas not abnormal, formed the right pole of an ovoid cyst, the wall of which arose immediately from the thickened and fibrous capsule, which is intimately connected with the posterior wall of the stomach and with a small part of the colon. The contents are 300 grammes of opaque fluid surrounding the tail of the pancreas, the tip floating free. The pancreas thus situated is flabby, macerated, and impregnated with large hæmatoidin crystals and acicular, orange crystals.—Israel. *Virchow's Arch.*, 1881, lxxxiii. 184.

Case LXII.—Female, adult. Well till within four months. In this time has had discomfort at the pit of the stomach and debility, but is able to be about. Sudden, severe epigastric pain, with vomiting of a copious, dark green, viscid fluid. Frequent stools resembling the vomit. Patient sleepless, temperature normal. Death in five days. Pancreas large, firmly adherent to adjacent parts, which were infiltrated with a discolored purulent fluid. The entire gland transformed into a dark, slate-colored, stinking mass, to within three centimetres of its attachment to the intestine, where it was sharply defined from the remaining more normal portion. Splenic vein contained a soft dark thrombus where it was in contact with the pancreas.—Whitney. *Boston Med. and Surg. Journ.*, 1881, cv. 593.

Case LXIII.—Female, aged fifty-seven. Eight weeks ago, violent pains, without obvious cause, constipation, speedy improvement. Three weeks ago, constipation again. For three days no dejection. Now, frequent,

[1] Hist. Anat. des Inflam., 1826, ii. 239.

green vomit, great prostration, marked swelling of left half of abdomen. Behind and below the dilated stomach a fluctuating tumor, immovable, size of a child's head. Laparotomy. Death in collapse after six hours. Pancreas necrotic, from which arose the suspected cyst, which was an abscess between the stomach and small omentum. The contents were an opaque, stinking fluid. There was fecal accumulation from pressure of the cyst upon the upper part of the small intestine which was adherent to it.—Rosenbach. *Cblatt. f. Chirurgie*, 1882, ix. Beil. 66.

CASE LXIV.—Female, aged thirty-two. Strong, abundant fat-tissue. Four weeks ago, sudden vomit, at first slimy, then bloody and greenish. Soon violent pains in the loins and back, fever, headache. Scanty, high-colored urine. Abdomen then began to swell. Now no fever, irregular pulse, clear intelligence, dyspnœa, abdominal pain, debility, abundant stools, albuminuria. For a few days temperature from 100° F. to 102° F., rarely normal and subnormal. Great abdominal distention, flanks dull. Five days later sudden death, preceded by increased dyspnœa. Pancreas, often appearing as if macerated, lay free, with the exception of its duodenal attachment, in a cavity, holding about a litre, which was exposed by separating the fibrous and fibrinous adhesions of the root of the mesentery to the transverse meso-colon. It lay on both sides of the spine, extending to the pelvis, behind the cæcum and descending colon, and, in places, separated the muscles which were covered with shreds. The contents were a greasy, grayish-yellow detritus, mixed with larger fragments, some nearly as large as a hen's egg. These appeared to have been shelled out of cavities, the walls of which were in part of an iron-rust color, in part dark brown, in part infiltrated with blood. The wall surrounding this necrosed fat was opaque, grayish-yellow or yellowish-white, narrow and sharply defined, without purulent infiltration. The mesentery contained numerous large and small, opaque-white patches, with, here and there, rust-colored edges. These had a centre of necrotic fat-tissue. There were recent pleurisy, a fatty heart, thrombosis of the left femoral vein, and embolism of the pulmonary artery.—Balser. *Virchow's Arch.*, 1882, xc. 523.

CASE LXV.—Male, aged twenty-two. Strong, abundant fat-tissue. A week ago, immediately after turning a handspring, felt a sharp pain in the lower abdomen. In the night, sudden, severe cramp of stomach, vomiting, chills, and sweating. A few hours later, collapsed, anxious, restless. Severe abdominal cramps; circumscribed tenderness near navel. Temperature normal. On the following day fever and diarrhœa. After temporary improvement lasting a week, there were persistent diarrhœa, pains, and tenderness of the navel, slight fever and considerable tympany just before death, on the fifteenth day. Site of the pancreas occupied by a black, shreddy, sloughy, soft, gangrenous mass; these characteristics most marked in the central region of the organ. The head and tail were represented by a central portion of a black, sloughy mass in which no trace of gland-structure was to be made out, which was encapsulated by the external portion. On raising the transverse colon a ragged blackish mass appeared, from a rent in which flowed a large quantity of thin, chocolate-colored fluid, also two or three soft clots size of an egg. No cardiac source of embolism. Acute peritonitis.—Prince and Gannett. *Boston Med. and Surg. Journ.*, 1882, cvii. 28.

CASE LXVI.—Female, aged forty. Umbilical hernia for two years. Irreducible for two weeks, with pain and swelling. Abundant fat-tissue. On the day after entering hospital for treatment of hernia, vomited breakfast; severe paroxysms of colic; small, flickering pulse. Nausea and bilious vomiting persisted on the next day; the face became anxious and pinched; the pulse 100, at times indistinguishable; the temperature normal. The pulse became 140, temp. 100.8° F., and she became pale, gasping and comatose, and died on the fourth day. Hemorrhagic infiltration and gangrene of the pancreas. Circumscribed peritonitis, gangrenous phrenitis. Acute pleurisy and pericarditis. Thrombosis of the splenic vein.—Homans and Gannett. Boston City Hospital MSS. Records, 1883.

CASE LXVII.—Male, aged forty-nine. In past three years, three attacks of jaundice, bilious vomit, severe pains and abdominal tenderness, most marked near xiphoid cartilage. After dinner burning in stomach, nausea, much abdominal pain. On the following day jaundice, bilious vomiting. The latter persisted for several days with frequent belching, and loose dejections. The abdomen became resonant except in the right flank, generally tender; temperature on the eighth day 100.8° F. Pulse and respiration rapid. On the tenth day he fell to the floor while trying to leave the bed, and soon died comatose. Hemorrhagic infiltration, necrosis, and sequestration of the pancreas, and multiple, disseminated necrosis of the subperitoneal fat-tissue.—Whittier and Fitz. Mass. Genl. Hospital MSS. Records, 1884.

CASE LXVIII.—Male, aged forty-two. For four years repeated attacks of vomiting, without colic, followed by jaundice lasting four or five days. During first five days paroxysms of abdominal pain, swelling of abdomen, vomiting, jaundice, two to three daily chills, fever; on the sixth day temp. 100.4°. Some green vomit. Pulse hardly quickened, no albuminuria. Abdomen inordinately distended and resistant, very sensitive, dense, and dull in left upper quadrant. Sudden collapse on the ninth day. Death on the thirteenth day. Tail and part of the body of the pancreas very soft, gray, discolored, infiltrated with a thin, ichorous fluid; the peripancreatic tissue partly purulent, partly ichorous. Spleen greatly enlarged, soft, splenic vein contains a soft, partly puriform thrombus, extending to the portal vein. Acute leptomeningitis.—Mader. *Ber. d. k.k. Kranhenhaus.* Rud-Stuft in Wien, 1884.

CASE LXIX.—Male, aged thirty-six. Powerful frame, abundant fat. In habit of drinking. From early youth attacks of abdominal pain, without constipation. A year ago the attacks became more frequent. After a hard day's work intense pain in mid-abdomen. In the course of three days no dejection. Temp. 100.4° F. Slight jaundice then appeared. There was a feeling of abdominal tension, although the abdomen was tympanitic and not remarkably distended. The nausea became lessened, the jaundice increased, the abdomen more distended, there was no excess of indican in the urine. On the seventh day the abdomen tended to retract except in the left upper part, where it was very sensitive. Laparotomy. The abdominal pain remained severe after the operation; there was no stool; and death, preceded by collapse, took place on the tenth day. Pancreas dense, nodular, with hemorrhagic coating; acini dull, yellowish-gray. Dry, hemorrhagic masses with yellow spots of softening. In the head are fatty softening and a hemorrhagic infiltration extending into the surrounding tissue. At the back of the pancreas a narrow line of hemorrhagic and necrotic tissue, beneath it the duct with necrotic wall. Left kidney and supra-renal capsule showed extensive, subperitoneal hemorrhage. The microscopic examination of the pancreas showed necrosis of the fat tissue with hemorrhagic processes in the tissue surrounding the fat lobules.—Gerhardi. *Virchow's Arch.*, 1886, cvi. 310.

CASE LXX.—Male, aged fifty-nine. Weight two hundred pounds. Strong and healthy. Two weeks ago thrown from carriage, but did not consider himself injured. The attack began with intense pain in the left abdomen, without fever; apparent improvement for three days, then labored and jerking breathing, rapid, extreme exhaustion, and death in ten days after the onset of the pain. The pancreas and mesentery showed a gangrenous parapan-

creatitis and necrosis of the mesenteric fat-tissue.—Foster and Fitz. MSS. Records, 1887.

The records of the Boston City Hospital give the following details concerning Case LXVI.

The patient, married, forty years old, with abundant fat-tissue, strained herself two years before her death, while lifting a heavy tub. There were immediate umbilical pain and swelling, but she was not compelled to give up work. Until two weeks before she entered the hospital she was able to replace the umbilical hernia. Since then the swelling and pain have increased.

On the day following her admission as patient, she vomited after breakfast, and was seized with a severe paroxysm of colic. The pulse became small and flickering. On the following day there were nausea and bilious vomiting, the pulse remained very weak, at times not perceptible, and the face was pinched and anxious. The temperature was not elevated. On the third day the vomiting had ceased, but the face was flushed, the temperature 100.8° F., and the pulse 144. She became comatose the next day, and died. Pallor, gasping respiration, a temperature of 100.8° F. and a pulse of 124 were recorded. The coils of intestine in the immediate vicinity of the pancreas were united together, and to the diaphragm, by recent fibrinous adhesions. On removing these the pancreas was found to be doubled in size, of a dark red color, and of a somewhat diminished density. On section, the tail was of a nearly uniform red color, soft, and its tip was shreddy. The duodenal portion was of normal density and of a mottled red and gray color.

The splenic vein was filled with a reddish thrombus, in places softened at the centre. The under surface of the diaphragm presented a dirty, grayish-white, shreddy appearance. A section through the diaphragm showed it to be four times as thick as usual, and to contain numerous small collections of dirty gray, puriform fluid. The diaphragmatic tissue was quite shreddy. There were an acute fibrinous pericarditis and a sero-fibrinous pleurisy. The umbilical hernia was omental and adherent.

Case LXVII. has the following record. The patient was an Irish laborer, forty-nine years of age, abundant fat-tissue.

In the past three years he had had three attacks of jaundice, with bilious vomiting, severe pain, and tenderness over the xiphoid cartilage. He had suffered also from severe paroxysms of abdominal pain, and had been told by a physician during the past winter that he had passed a gall-stone.

After dinner he suffered from a burning sensation in the stomach, followed by nausea and severe abdominal pain, not paroxysmal, but increased on motion. He became jaundiced on the next day and vomited a dark green fluid, and considerable mucus. For the subsequent three days the vomiting persisted, and there were frequent gaseous and bitter eructations, also several loose, dark green dejections.

He entered the hospital on the fifth day. The jaundice was conspicuous, the abdomen was resonant, except in the right flank, and sensitive. The pulse was 100 and the temperature rose abruptly from 97.4° F. to 100.8° F. During the subsequent four days the diarrhœa persisted. The urine contained a trace of albumin and a variety of casts. The pulse varied from 120 to 150, the respirations were very rapid, and the temperature remained moderately elevated.

On the eighth day he dressed himself, but did not seem conscious of his actions. He became mildly delirious on the following day, and while trying to escape from the ward, fell forward, was temporarily unconscious, and his pulse could not be counted. The temperature became subnormal, but arose to 100° F. in the evening. On the tenth day, while trying to leave the bed, he fell to the floor, his pulse became weaker and more rapid, his breathing resembled the Cheyne-Stokes rhythm, and he died comatose.

The posterior wall of the stomach and the upper part of the mesentery were united by fibrinous adhesions to the pancreas, which lay in a cavity, within a spongy meshwork, infiltrated with dirty green fluid. The pancreas was dark brown, dry, and firm. On section the lobules were indistinct and the surface granular. Numerous opaque-white patches were seen, resembling those to be described in connection with the abdominal fat-tissue. The splenic vein contained a mixed thrombus, four inches long and one-half the thickness of the little finger, and continued into several of the pancreatic branches. The spleen was soft and small. The liver was moderately granular and fatty. The gall-bladder was contracted about several calculi, the largest nearly the size of the end of the thumb, and projecting into the cystic duct. The walls were thick and tough, the mucous membrane thin, and streaked with opaque-white lines. The cystic and common ducts were dilated.

The superitoneal fat-tissue of the abdominal wall, mesentery, omentum, and perinephritic region contained numerous superficial and deep-seated small, circumscribed, rounded, opaque-white, and saffron-colored patches. In general, they were elongated, measuring an inch by a quarter of an inch. Rarely they were nodular, as large as a filbert, and on section contained dark brown, discolored centres. Sections of the frozen fat-tissue showed numerous cavities containing a shreddy tissue infiltrated with opaque-pink fluid of creamy consistency. Microscopical examination of the fresh specimens showed numerous leucocytes and large, round cells, with granular detritus, opaque-white specks, and bundles of small, acicular or rod-like crystals.

There was nothing abnormal in the appearance of the stomach or intestines.

The microscopic examination of the hardened pancreas shows a small quantity of interlobular fat tissue. In this are numerous islets of necrosis, the appearances being essentially the same as those found in the parapancreatic fat-tissue.

The larger ducts are filled with clumps of coherent, detached, cylindrical epithelium with distinctly stained nuclei.

The gland-cells in certain parts, especially in the immediate vicinity of the necrotic fat-tissue, are swollen, granular, confluent, and without evident nuclei. The outlines of the acini are irregular or indistinct. Certain of the lobules present a diffused infiltration of round cells. Many of the acini show a central accumulation of homogeneous, hyaline material, with corresponding flattening of the gland-cells.

Sections of the subperitoneal and parapancreatic fat-tissue present numerous patches, varying in extent and shape, all more or less rounded, oblong, or leaf-like. They are sharply defined by a limiting zone, varying in width, of small, round-celled infiltration between the fat-cells. Next this cellular layer is often found a narrow, orange-colored streak, in which are frequent granules and round clumps of small, orange-colored acicular crystals. Within the patch the outlines of the fat-cells are often distinct over considerable areas, but elsewhere are almost wholly, if not entirely, obliterated by the clusters of large and long acicular crystals and granular material. These crystals were isolated, dissolved, and recrystallized by Dr. Harrington, assistant in chemistry at the Harvard Medical School, and are pronounced by him to be identical with those obtained from ordinary tallow.

In addition to the crystals and granules, bacteria were found, both as circumscribed colonies within, and as diffused accumulations without the patches.

In the fat-tissue surrounding the patches of necrosis are occasional hemorrhagic spots with distinct outlines of

red blood-corpuscles. Small and irregular patches of leucocytes, without intercellular substance, are to be seen, occupying more space than that of several fat-cells.

Occasionally, elongated bands are found considerably wider than any visible bloodvessels. They are composed of agglomerated round-cells with solitary, larger corpuscles containing granular pigment. At each side of the central streak are numerous isolated, round and larger, flat, polygonal cells with large nuclei. These, in turn, are defined externally by a margin of clustered leucocytes. Arteries and veins are free from obvious changes.

The following record of Case LXX. is given as fully as possible. It is to be regretted that neither the specimen nor a detailed description of the pancreas was preserved. A gentleman, fifty-fine years of age, temperate, strong, and healthy, weighing 200 pounds, was thrown from his carriage, but did not consider himself injured. Four days later he was seized with intense pain in the left abdomen, associated with nausea and vomiting. At the outset the pulse was 80, and the respiration 24. There was no fever at any time. After a few days the pain and tenderness were relieved. From the outset extreme exhaustion was a conspicuous symptom. Eventually rapid and labored breathing came on, and the patient died on the tenth day.

A memorandum on the back of the letter accompanying the specimens and giving the clinical details, states that the conspicuous lesions were a gangrenous peripancreatitis and necrosis of the mesenteric fat-tissue. From the lack of further details the question might be raised as to the exact method of origin of the gangrene and necrosis. At the time I was satisfied that the case was analogous to that which immediately precedes, viz., Case LXVII.

Of these fifteen cases seven were males and eight females. Their ages were as follows:

Years of age.	Number of cases.
From 22–25	1
" 25–30	1
" 30–35	1
" 35–40	2
" 40–45	2
" 45–50	2
" 50–55	2
" 55–60	2
" 60–63	1
Past middle life	1
	15

They were from all walks and conditions of life. Five were very fat, one was decidedly lean; five were strong and two of them were addicted to alcoholic drinks.

Eight of these patients had been subject to earlier, more or less repeated, attacks of digestive disturbance. These were always attended with pain, usually referred to the region of the stomach, or stated to be biliary colic. They were frequently accompanied with vomiting, and in one-third of the number with jaundice. Constipation or irregular defecation might occur, and in the latter case the stools were black.

At first sight, the etiological importance of perforating gastric ulcer and of gall-stones seems immediate, as illustrated by Cases LVII., LVIII., LXVII.

The comparison of these cases with others in the series would suggest that these affections were more important from the associated inflammation of the mucous membrane, with its opportunity of extension into the pancreatic duct, than from the actual or possible perforation of the biliary or digestive canal.

A traumatic cause for the fatal illness was possible in two instances.

In the one the patient was seized with a sudden pain in the lower abdomen, while turning a handspring, a week before the fatal illness. In the other the patient was thrown from his carriage five days previous. One person was seized with an attack while under treatment for an umbilical hernia of two years' duration. A mid-day meal and a hard day's work were each the immediate antecedent of the attack.

The illness usually, in four-fifths of the cases began suddenly, without definite cause, with abdominal pain. This was rarely slight, but often intense or severe. It was referred to the stomach, left hypochondrium, navel, mid-abdomen, and left loin and back. The pain might be constant or paroxysmal like a biliary colic, and a diagnosis of gall-stones was made in one instance.

Vomiting was the next symptom of importance, being recorded in three-fifths of the cases. Partly digested food was ejected, or a viscid or slimy fluid, often green, sometimes black or bloody. Constipation was, at times, so conspicuous that, in connection with the other symptoms, a diagnosis of intestinal obstruction was made in three cases and laparotomy performed in two. On the contrary, frequent, bilious stools might occur.

The urine might contain albumin and casts. In one case an excess of indican was repeatedly sought for, in vain.

Jaundice, usually slight, occurred after a few days in one-fifth of the cases.

Chills were occasional, sometimes at the onset, and fever was frequent after a few days. The temperature was likely to be low, in the vicinity of 100° F., although it might be as high as 104° F. There might be no conspicuous f ver throughout the course of the disease.

Swelling of the abdomen was present in one-half of the cases, usually occurring as a late symptom.

It might be slight or enormous, general, or limited to the epigastrium, or to the left half where a fluctuating tumor was to be recognized. The abdominal swelling was usually tympanitic, although dulness might be present in the flanks. The spleen was palpable in a single instance, and the parotid became acutely swollen in another case.

As the disease ran its course, weakness became apparent. Vomiting, perhaps diarrhœa, and abdominal pain were noticeable, suggestions of peritonitis were frequent, and symptoms of collapse were likely to take place, being followed more or less rapidly by death, which occurred as follows:

On the 4th day in	1 case.
" 5th "	1 "
" 10th "	3 cases.
" 13th "	1 case.
" 15th "	1 "
" 18th "	1 "
At the end of 3 weeks in	1 "
5 "	1 "
7 "	1 "
8 "	1 "
Not stated in	1 "

Two patients recovered with the discharge of a slough through the bowel, one at the end of eight weeks. One of these patients was living seventeen years later.

The diagnosis lay between intestinal obstruction, biliary calculi, and peritonitis.

The appearance of the pancreas varied according to the duration of the disease. About the fourth day[1] the pancreas may be doubled in size, dark-red, and of somewhat diminished consistency. It may be red, on section, or mottled red and gray. The tip may be shreddy, or the entire gland may be transformed into a dark, slaty-colored, stinking mass. The adjacent parts may be infiltrated with a discolored, purulent fluid, or the coils of intestine near the pancreas may be united by recent adhesions together and to the under surface of the diaphragm.

The latter may show a dirty, grayish-white, shreddy appearance, and its thickened substance may contain small collections of dirty gray puriform fluid, the tissue itself being quite shreddy.

On the tenth day[2] the pancreas may be dark brown, dry, firm. It may have a hemorrhagic coating or lie in a sponge-like meshwork infiltrated with dirty green fluid. On section, there may be dry, hemorrhagic masses, with yellow spots of softening, or the lobules may be indistinct, with intervening, opaque-white patches like those to be found in the neighboring fat-tissue. The hemorrhagic infiltration may extend beyond the gland. The wall of the duct and the overlying tissue may be necrotic and hemorrhagic. The perinephritic fat and that near the supra-renal capsule may contain extensive hemorrhages.

Toward the end of the second week[3] the pancreas may be a soft, black, shreddy, sloughy, gangrenous mass, the central part being encapsulated by the peripheral portion. Between the pancreas and the transverse colon may be a large quantity of chocolate-like fluid and large, bluish-black clots. Or the tail and a part of the body may be soft, gray, discolored and infiltrated with a thin, ichorous fluid while the para-pancreatic tissue is partly purulent and partly ichorous.

A few days later[4] the pancreas may be a thin, flabby, friable, grayish band, lying in a cavity behind the stomach and attached by a few shreds to the omental wall. The cavity may contain ichorous fluid and communicate with the stomach by several openings with frayed edges.

At the end of three weeks[5] the dark-brown pancreas may lie nearly free in the omental cavity, attached only by a few rotten shreds of fibrous tissue. The cavity may contain abundant ichorous, bloody fluid and communicate with the duodenum. During the fourth and fifth weeks the pancreas may be discharged as a slough from the bowels.

In the fifth week[6] the pancreas may lie free, as if macerated, in a cavity extending behind the cæcum and descending colon, on both sides of the spine, as far as the pelvis. The contents may also be a greasy, grayish-yellow detritus, with fragments of necrotic fat-tissue nearly as large as hen's eggs. The latter are apparently sequestrated from spaces with walls of a dark-brown or iron-rust color.

At the end of seven weeks[7] the pancreas may be transformed into a cylindrical, shreddy mass of brownish-black, friable tissue. This may lie in the omental cavity, which is filled with offensive, black fluid and communicates with the stomach and jejunum.

Thrombosis of the splenic vein frequently accompanies the pancreatic lesion and is usually parietal. The thrombus in the early stages is soft and dark red, or it may be of a reddish-gray color. It has been found partly puriform, and extending to the portal vein, at the end of the second week.

A little later it has been found completely obstructing.

The spleen may be soft, and is either large or small. Disseminated fat-necroses are often seen.

From the frequent mention of the position of the pancreas in the omental cavity filled with ichorous pus, it is evident that an acute peritonitis with liquid exudation is a frequent, if not the usual, occurrence. The pus may be prevented from entering the general peritoneal cavity by adhesive obliteration of the foramen of Winslow.

Peritoneal adhesions between coils of intestine are not infrequent, especially in the vicinity of the root of the mesentery. A general, suppurative peritonitis is of comparatively rare occurrence.

The inflammatory process may be extended to the pleural and pericardial cavities, and an acute lepto-meningitis has been found on the thirteenth day. At a late stage of the disease, death may result from pulmonary embolism.

The possibility of an arrest of the processes resulting in pancreatic necrosis and parapancreatitis is evident from Case LX. Although the patient died of diabetes, the symptoms of which lasted at least a year, the tail of the pancreas was flabby and macerated, and its tip lay free in a cyst arising immediately from the pancreatic capsule.

It is obvious from the anatomical appearances in this group of cases of gangrenous pancreatitis, para- and peri-pancreatitis, that the lesions are associated with a hemorrhagic pancreatitis in a considerable number of cases. In at least one-half there is mention of hemorrhage into the pancreas or of such discoloration as to suggest a hemorrhage.[1]

A comparison of the clinical history of this series of cases with that of hemorrhagic pancreatitis will show a strong resemblance in predisposing causes and in the nature of the symptoms. These are essentially identical in nearly all. In many of the remaining cases the symptoms are those which would favor the diagnosis of a hemorrhagic pancreatitis.

In any event they represent the termination of acute pancreatitis in gangrene, with an extension of the process to the contiguous tissue.

Viewing the subject from the anatomical side it is evident that cases of hemorrhagic pancreatitis may terminate fatally within a few days, either with or without necrosis of the gland and parapancreatic fat-tissue. They may also prove fatal in from one to four weeks, in consequence of an extension of the disease to the para- and peri- pancreatic tissues, with gangrene of the parts concerned.

(To be concluded.)

[1] Cases LXII., LXVI.
[2] Cases XLVII. and XLIV.
[3] Cases LXV. and LXVIII.
[4] Case LVI.
[5] Case LX.
[6] Case LXIV.
[7] Case LVIII.

[1] See Cases LVIII., LX., LXI., LXII., LXV., LXVI., LXVII., LXIX.

ORIGINAL ARTICLES.

THE TREATMENT OF ACUTE AND SUBACUTE NEPHRITIS.[1]

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ALTHOUGH I am to bring forward for your consideration this evening the treatment of acute and subacute nephritis, I must acknowledge at the outset that I have no new drug to propose, no new plan of treatment to advocate. Rather is it my object to determine, if possible, how plans of treatment and drugs already employed are to be intelligently applied in individual cases of the disease. For it is of importance not only that patients should be cured of their disease, but that this cure should be effected as speedily and as comfortably as possible; or, if the disease is an incurable one, that life and the capacity for labor and for enjoyment should be prolonged to the utmost.

To give an idea of the methods of treatment ordinarily employed, it will be sufficient to quote shortly from a French, a German, and an American author.

Labadie-Lagrave in the *Nouveau Dictionnaire de Médecine et de Chirugie*, xxx. p. 761, says:

"In acute nephritis the activity of the urinary secretion is the measure of the situation of the patient. The principal indication is to favor diuresis. Ordinary diuretics, including digitalis, are dangerous, but in milk we have at once a diuretic and a food. To make up for the insufficient action of the kidneys we employ warm baths and drastic cathartics. The dropsy does not require special treatment. Vomiting, if not excessive, is to be regarded as salutary. In the uræmic attacks we employ bleeding, chloroform, and chloral hydrate. In uræmic coma we advise inhalations of oxygen gas with the administration of caffeine.

As soon as convalescence is established the patient should return to a solid diet and take iron and tonics."

Strümpell, *Practice of Medicine*, English translation, p. 794, says:

"There is no way of directly affecting the inflammation of the kidneys. The chief object of treatment is to prevent the injurious results of the defective elimination of the solid and fluid constituents of the urine. To effect this object the patient should be kept in bed, on a milk diet; and the skin by means of diaphoretics, the intestines by means of cathartics, should be made to act vicariously for the kidneys. Dropsy is to be treated by sweating, cathartics, diuretics, and puncturing the skin or the serous cavities. Vomiting and diarrhœa are to be regarded as salutary. Uræmic attacks are to be treated with cathartics, chloroform, sometimes morphine."

Flint, *Practice of Medicine*, p. 872, says:

"The objects of treatment are: 1. Diminution of the intensity of the renal inflammation, promotion of resolution, and restoration of the excretory functions of the kidneys. 2. Diminution or removal of dropsical effusions. 3. Elimination of urea through the skin and gastro-intestinal mucous membrane if uræmia exist or be threatened. The patients are to be kept in bed and on a fluid diet. To diminish the nephritis dry cups or hot fomentations are to be applied over the kidneys and saline laxatives given. For the dropsy we use cathartics, the saline diuretics, and digatalis; for the elimination of urea, cathartics, pilocarpine, hot-air baths, bitartrate of potash, infusion of digatalis, decoction of broom, or plain water; for coma and convulsions, venesection, chloroform, chloral hydrate; during convalescence a generous diet, exercise, and iron."

Most other authors take much the same view of the treatment; that its main object is to make up for the diminished quantity of urine by action on the skin and intestines; and that the principal danger of an acute nephritis is the accumulation of excrementitious substances in the blood.

Some authors, in addition, believe that they can rest the kidneys while they are inflamed, by producing diaphoresis or catharsis, and that such rest will diminish the severity of the nephritis.

Some think that by a sufficiently large ingestion of fluids the inflammatory products can be washed out of the kidneys; a procedure which seems to be analogous to the treatment of scouring the blood, which is practised by some eclectics.

Digitalis is regarded with apprehension by some, while others warmly advocate its use as a diuretic, or as a remedy for the febrile movement (Gerhardt).

Morphine in considerable doses is employed by some for the relief of uræmic attacks; in small doses by others to relieve vomiting and restlessness; while still others deprecate its use under any circumstances.

General bloodletting seems to be restricted by most to the nephritis of pregnancy, and to the very severe forms of the disease attended from the first with high temperatnre and cerebral symptoms.

The disposition at the present time to direct attention and treatment to the symptoms of the nephritis, rather than to the nephritis itself; to the dangers of a diminished excretion of urine, rather than to the bad effects of kidneys in a state of acute inflammation is so general and decided that it may be wholesome to look at the subject from the opposite point of view, and to direct attention not to the functions of the kidneys, but to the kidneys themselves.

In order to do this we must at once separate the cases of acute nephritis from those of subacute nephritis, the condition of the patients being altogether different.

I. ACUTE NEPHRITIS.

Most of the cases of acute nephritis which we meet with complicate scarlatina, diphtheria, or pregnancy. Less frequently the nephritis complicates one of the other infectious diseases or severe inflammations, or it is a primary lesion.

In all cases of acute nephritis one morbid change

[1] Read before the New York Academy of Medicine, March 7, 1889.

is constant—congestion and exudation from the bloodvessels. The exudate consists of blood-serum, white blood-cells, and red blood-cells, which escape for the most part into the tubes and are mixed with the urine, to a less extent into the stroma of the kidney. The principal part of the exudate is regularly serum, but in some cases the emigration of white blood-cells is considerable, and in some cases with a large emigration of white blood-cells the exudation of serum is but small. In addition to this constant change in the kidney, other lesions may or may not be added. There may be swelling and multiplication of the cells covering the tufts of the glomeruli. There may be degeneration and death of the renal epithelium. There may be a growth of the capsular cells of the glomeruli, compressing the tufts of vessels. There may be a growth of new connective tissue in the stroma of the kidneys.

According to the severity of the nephritis, symptoms of varying number and severity are presented by the patients.

In the very mild cases the only symptom is a diminution in the quantity of the urine, and the presence in it of the exudate from the kidneys—the albumin, casts, and red and white blood-cells.

In the more severe cases the same changes in the urine exist and there are added constitutional symptoms—fever, prostration, loss of appetite, nausea, vomiting, anæmia.

In the still more severe cases there are also headache, delirium, stupor, convulsions, labored heart action, hypertrophy of the left ventricle, a pulse of high tension, and dropsy.

In the cases in which the urine is suppressed for a number of days, the patients develop alternating stupor and delirium and pass into the typhoid state.

The regular duration of a fairly developed acute nephritis seems to be about four weeks. Its natural termination, whether with or without treatment, is in recovery. But the more severe cases may prove fatal; the cases in which there is from the first a growth of new connective tissue in the stroma, are likely to become chronic.

With a nephritis of such a character and attended with such symptoms, what are the indications for treatment?

In the very mild cases evidently no treatment is necessary, except to keep the patients in bed and on a fluid diet.

In the more severe cases it is often proper to interfere in order to secure greater comfort and safety for the patient.

The different conditions which may call for treatment are: The nephritis itself. It is to be remembered that, although the quantity of urine voided is small, its quality is good, for it contains a fair proportion of excrementitious solids to the ounce of fluid; that convulsions and coma belong to the early days of a nephritis with scanty urine, while prolonged anuria is accompanied rather with the typhoid state; that the excretion of urine must naturally relieve the congestion of the kidney, so that it is better for the kidney to perform its functions than to be at rest; that so long as the congestion of the kidneys persists the quantity of the urine will be diminished; that a considerable diminution in the quantity of urine continued for one or two weeks is often perfectly well borne.

It is not, therefore, necessary to pay attention to the diminished quantity of urine, and to try to make the skin or the intestines do the work of the kidneys; it is wiser, by relieving the congestion of these organs, to enable them to do their own work, knowing that the moment they begin to do this their congestion will be still further diminished, and that although the nephritis still continues, the excretion of urine may then be sufficient.

Fortunately, we have at our command means by which the congestion of the kidney can be diminished, not completely, it is true, but partly; not for any length of time, but for short periods.

These means are: Causing the blood to collect at the surface of the body by the application of heat to the entire skin; the use of dry cups, or wet cups, or heat over the lumbar region; the empirical use of calomel or sulphate of magnesia, in small doses, repeated at short intervals, until the bowels begin to move; the use of such drugs as will diminish the increased arterial tension. While the nephritis is still active, however, we do not expect that by the use of any means the urine will be brought up to its full normal quantity, but only that a sufficient quantity will be passed to insure the safety of the patient.

The febrile movement in an acute nephritis requires no treatment.

The prostration, loss of appetite, nausea, and vomiting only call for rest in bed and a fluid diet.

The anæmia ought unquestionably to be prevented or relieved, but while the nephritis is still active I know of no way in which this can certainly be done. When convalescence is established then the anæmia readily improves with the ordinary methods of treatment.

The cerebral symptoms are those to which most attention has been directed. There can be no question that they regularly accompany a contraction of the arteries with increased tension and labored action of the heart. No matter what views one may entertain as to the cause of this change in the circulation, I believe that treatment is best directed to the arteries themselves rather than to the uncertain cause of their contraction. Fortunately, we possess drugs which act promptly and efficiently for this purpose. Of these drugs, the most suitable are aconite, chloral hydrate, and opium, preferably given

in small doses and at regular intervals, so that their use can be continued for some time.

It is wise to watch the condition of the heart and arteries, and as soon as the condition of increased arterial tension is developed, not to wait for the manifestation of the cerebral symptoms, but to try to relieve it at once.

The treatment of a case of acute nephritis resolves itself, therefore, into the treatment of the nephritis itself, and of the contraction of the arteries which may accompany it. To carry out this treatment, I can, from experience, strongly recommend the following routine: The patient is put to bed and on a fluid diet; the entire skin is washed clean every day; for two successive days drachm doses of sulphate of magnesia are given every hour until one ounce has been taken, or the bowels begin to move; after this, the tincture of aconite is given in doses of one minim every hour.

Within a few days the albumin in the urine will have diminished, the pulse will be soft, the dropsy will have disappeared, but the patient will be anæmic. The milk is now gradually replaced by solid food, and iron and oxygen are given.

II. SUBACUTE NEPHRITIS.

The distinction between acute, subacute, and chronic inflammations is an arbitrary one, but yet often of real convenience. This is especially true of nephritis.

In acute nephritis, as we have seen, the inflammation is an acute and temporary one attended with congestion and exudation. The interference with the function of the kidney is only with the quantity of the urine; the urine that is produced is of good quality. The symptoms are due to the nephritis itself, and to the accompanying contraction of the arterial system.

In subacute nephritis, on the contrary, the inflammation is subacute and long continued; there is no congestion; the exudation is of the profuse, almost dropsical character that we meet with in other subacute inflammations, such as pleurisy with effusion; there are permanent changes in the stroma and glomeruli of the kidney. The interference with the functions of the kidney is not with the quantity of the urine—for this is often in excess—but with its quality, the proportion of solid matters steadily decreasing as the disease advances. The symptoms are largely due to the effect of the nephritis on the composition of the blood and the nutrition of the body. The anæmia, the dropsy, and the loss of strength are the prominent features of the disease. Contraction of the arteries is absent, or present at intervals. The cerebral symptoms are chronic rather than acute.

It may happen, however, that in the course of a subacute nephritis there will be exacerbations of the inflammation, during which the changes in the kidney and the symptoms are the same as those of an acute nephritis.

Subacute nephritis is especially common as a primary disease, and as a sequel of scarlatina and diphtheria.

The patients lose strength, they become anæmic; they suffer from nausea, vomiting, and diarrhœa; there may be inflammation of the retina; the arteries are for the most part relaxed, but may sometimes be contracted; the cerebral symptoms are more frequently chronic than acute, and dropsy is apt to be a marked symptom.

The urine may be somewhat diminished, but is often in excess. The specific gravity and quantity of solid matters excreted diminish as the disease progresses. The quantity of albumin mixed with the urine is considerable.

Some of the patients continue to get worse in every way, and die within one or two years.

Some of them exhibit some or all of the symptoms of the disease for weeks or months, then seem to be partly or completely well; and then again become ill, and so may go on for many years, sometimes better, sometimes worse.

In some of them, acute exacerbations of the inflammation may give for a time the symptoms of acute nephritis. A very few patients seem to recover permanently.

The conditions which require treatment in these patients are:

1. The subacute nephritis.
2. The changes in nutrition and in the composition of the blood.
3. The dropsy.
4. The condition of the arteries.
5. The cerebral symptoms.
6. The acute exacerbations of the inflammation.

For the nephritis itself the most efficient treatment is the residence of the patient in a suitable climate. The climate should be warm, and the particular locality selected should be one where the patient can lead an outdoor life.

If the patients remain in a cold climate, it will be necessary to confine them to the house for much of the time. Except during the exacerbations of the nephritis the patients should take as much of solid foods and of fats as they can digest. The excessive use of milk and of the mineral waters is to be avoided. It is possible that the use of opium or of the bichloride of mercury may favorably affect the nephritis.

The anæmia is a most important symptom. There is a diminution in the quantity of hæmoglobin and in the number of red blood-cells. The most efficient treatment for this is the internal use of iron and the inhalation of oxygen combined with massage and the relief of constipation. With this treatment in

many of the patients the improvement is satisfactory, but in some no such improvement takes place.

The dropsy may never be more than an inconvenience, or it may be the most distressing feature of the case. It is apt to reach its greatest development with low arterial tension and often with a large excretion of urine.

In some cases the treatment of the anæmia and the regulation of the diet will answer at the same time for the treatment of the dropsy. In other cases we must employ different means.

When a subacute nephritis has lasted for any length of time the quantity of urea excreted falls to six or seven grains, or even less, to the ounce. The patients ought therefore to pass daily seventy or more ounces of urine. If we wish to diminish the dropsy by increasing the quantity of urine, it is well not to increase the urine more than will be sufficient to enable the patient to excrete his five hundred grains of urea a day.

The quantity of fluids which the patients drink should be regulated, as far as possible, according to the quantity of urine passed; not allowing the former to exceed the latter.

In the extreme cases of dropsy we are obliged to purge, to sweat, to puncture the skin, to tap the serous cavities. But when these measures become necessary it means that the case is an unfavorable one.

The condition of the arteries and of the left ventricle of the heart should be watched throughout the disease. High arterial tension can often be controlled by nitro-glycerine, chloral hydrate, or opium. Low arterial tension can, theoretically, be heightened by digitalis or ergot, but I have found no advantage in doing this.

To avoid the cerebral symptoms we have constantly to watch the excretion of urea and the condition of the arteries. The quantity of urine should be kept large enough to make up for its diminished solid contents; increased arterial tension should be at once relieved.

The acute exacerbations of a subacute nephritis are to be managed in the same way as an attack of acute nephritis.

As I stated at the beginning of this paper, I am not able to offer any new plan of treatment. I have simply tried to show that some of the old plans may perhaps be more intelligently applied; and that, while symptoms have to be treated, that this may be done largely with direct reference to the nephritis. I trust that the discussion which will be elicited may be of more value than the paper itself.

HYSTERICAL VOMITING.

By HUBERT WORK, M.D. (Univ. Pa. '85),
of Fort Morgan, Colorado

Flora W., aged thirty-five, unmarried, previous health perfect and of good family history, was taken suddenly ill with nausea, vomiting, severe occipital pain, and slight febrile movement. These symptoms gradually subsided, except the fever, and disclosed developing typhoid fever, which presented the usual symptoms of this disease in a mild form, completing its course in four weeks, the temperature at no time rising above 103° F. Throughout this period of illness the patient never would admit feeling improved, nor express any opinion other than that she would never recover.

After four weeks my visits terminated, believing her practically recovered.

After ten days I was summoned and found my patient resignedly vomiting as though she was fulfilling a sacred duty, and was told that she had been doing so at intervals of two or three hours for twenty-four hours. Careful examination of all organs known to produce emesis, either directly or reflexly, gave negative results. Simple remedies were ordered without favorable result. A systematic course of treatment was then begun which embraced a trial of all remedies named as antiemetics in the materia medica, including cocaine; antipyrin by the bowel with blisters and ice externally.

The vomiting continued and became more frequent, so that after the fifth day there was a paroxysm of greater or less severity every hour, and many hours twice or thrice—nothing would remain on the stomach, lumps of ice were ejected before they had melted, accompanied with bile and water; this continued up to the tenth day, when streaks of blood appeared in the vomited matter. At no time during these ten days was there an increase of temperature—for two days it was subnormal; there was no pain in the head or headache, no strabismus, no abdominal tenderness; the bowels moved readily by rectal injections though scantily; no uterine displacement was detected, nor irritation from its appendages or tenderness of any organ. To state in her hearing that she was improving, or the absence of the nurse, or any fancied neglect, would be followed by a violent attack. Wearied by the importunities of the family "to do something" my stock of remedies and patience exhausted, I administered subcutaneously one-quarter grain of morphia with one two-hundredth of a grain of atropia with but little effect; in two hours this amount was repeated, with the result that the vomiting stopped, and was followed by a night's sleep, the first in four days. For four days the patient was kept stupefied by repeated small hypodermatics of morphia, when it was withdrawn and large doses of potassium bromide given by enema. Vomiting did not recur to any extent worthy of mention and on the fourth day after withdrawal of the morphia, food was given by the mouth and retained; after thirty-six hours nutrient enemata were abandoned and nourishment by the stomach persevered in exclusively. The patient, though mentally weak and suffering from

an occasional hysterical explosion, had no return of vomiting and the improvement rapidly terminated in perfect recovery.

ON CHRONIC HEADACHES OF FUNCTIONAL ORIGIN.

A Clinical and Etiological Study, based on Records of Two Hundred Cases.[1]

BY CHARLES L. DANA, M.D.,
PROFESSOR OF NERVOUS AND MENTAL DISEASES, NEW YORK POST-GRADUATE MEDICAL SCHOOL, NEW YORK.

THE trigeminal nerve is the most sensitive and highly differentiated of all the cutaneous nerves. From the beginning of mammalian life it has been at the front in the struggle for subsistence, and has received constantly an excess of stimulus over other sensory nerves, which has educated it to the very highest degree of delicacy and responsiveness. Spread over the face and cranium of man, it gives to him the best information that skin and muscles can anywhere afford, and is a source of protection and information, as well as of æsthetic gratification.

The penalty paid for this high degree of evolution of the trigeminus is its readiness to the assaults of disease, and its response to almost every pathological irritation. Headache and head-neuralgias are the most common of mortal afflictions, and may be symptomatic of almost any disease.

I intend, therefore, to speak now only of chronic and chronically recurring headaches of functional origin, but expressly excluding migraine.

What I have to say is based chiefly on an analysis of 200 cases of functional, non-migrainous headaches, whose records I have preserved.

FREQUENCY OF HEADACHE.—Sir Richard Owen estimated, from no definitely given data, that five per cent. of school children have headache.

Dr. G. E. Herman (*Medical Times and Gazette*, November 29, 1884) estimates that fourteen per cent. of school children have recurrent headache. Among 160 adults (67 women, 95 men) he found that two-thirds of the women (44) and one-fourth of the men (25) had recurrent headache.

Another observer found that among 334 women, 136 had headache at the molimen, and of these, 48 had migraine.

Among about 2000 cases of nervous disease, 200 (ten per cent.) came for chronic headache.

PATHOLOGY.—Headache is, strictly speaking, a form of neuralgia. It has a diffused character, owing to the part of the nerve involved.

The *seat of headache* is the external envelope of the skull and the dura mater; in rare cases only the skull being involved.

The *nerves affected* are, first, the trigeminal, which supplies the face and scalp as far back as a vertical line from the vertex, and the dura mater of the anterior three-fourths or more of the cranial cavity; second, the four upper cervical nerves which supply the posterior scalp and neck; and, third, sensory branches of the vagus which supply the posterior fossa of the skull.

The pia mater has vaso-motor but no sensory nerves, and the brain-substance is insensitive to pain until one strikes the prolongations of the sensory tracts in the brain axis and basal ganglia.

Sensory impulses from the face, scalp, or meninges flow along the trigeminus, cervical nerves, or vagus; they pass up through the sensory tracts in the medulla and pons, connect with nodal nuclei here and at the base of the brain, and finally impinge on those parts of the cerebral cortex which are known as the motor areas.

There are three types of head-pains, viz., headache, neuralgia, and migraine.

Headaches are caused, as a rule, by diffuse irritations located in or referred to the peripheral ends of this tract.

Neuralgias, on the other hand, are caused by irritations of the trunks of these nerves. The cortex itself may, perhaps, be the seat of a headache, but then it is a psychical pain and of the nature of a hallucination.

Migraine is a periodical neurosis in which there is a discharge of nerve force not only affecting the trigeminus, but often other cranial nerves as well as sympathetic fibres.

In chronic non-migrainous headaches, the periphery of the nerves supplying the dura mater is oftenest affected, and headaches are called by some intrinsic pains, while neuralgias are called extrinsic. In reflex, or, strictly speaking, transferred head pains the irritation is shunted off or diffused over from the original irritated nerve upon the central tracts of the trigeminus, or cervical or vagal nerves. The explanation of this is easy: The trigeminal nerve has central tracts which very easily awaken sensations in consciousness. The innumerable excitations of this nerve have broken a broad pathway to the cortical areas. On the other hand, the vagus branches to the stomach, for example, cannot by stimulation so easily arouse a conscious sensation; the nerve impulses started in it by an undigested bolus of food, therefore, pass up to the medulla, and then flowing over take the easier path to the cortex, viz., that of the first branch of the trigeminus, and the patient has frontal headache.

ETIOLOGY.—Chronic and recurrent headache is always a symptomatic trouble. We know of no such thing as essential or idiopathic headache aside from migraine. Its study, therefore, is naturally limited chiefly to the subject of etiology and treatment.

Predisposing causes. My patients represented a city population; many of them living in bad hy-

[1] Read at the meeting of the New York State Medical Society, February 6, 1889.

gienic conditions. The etiology of their troubles applies pretty correctly to headache in general, but no doubt somewhat different results would be reached in another country, a different climate, and in rural districts.

Sex. The males number 53, females 147. This gives a ratio of about 3 to 1 in favor of the female sex, and shows a greater preponderance relatively of headaches than of neuralgias in general, in which the ratio is as 5 to 3.

Headache belongs still more than neuralgia to woman.

Age. The following table shows the ages at which these headaches most prevail:

Age.	Male	Female.	Total.
5 to 10 years (inclusive)	10	14	24
10 to 15 " "	6	21	27
15 to 20 " "	3	29	32
20 to 25 " "	6	17	23
25 to 30 " "	4	11	15
30 to 35 " "	3	10	13
35 to 40 " "	2	14	16
40 to 45 " "	1	8	9
45 to 50 " "	6	1	7
50 to 55 " "	1	1	2
55 to 60 " "	1	4	5
60 to 65 " "	0	1	1
65 to 70 " "	1	0	1
Total	44	131	175

The headache ages are from 10 to 25 and 35 to 45; most cases occur between the ages of 8 and 25, especially in females. The number of headaches increases gradually from the period 5 to 10 years up to the period 15 to 20, then falls till the 35th year, and rises again till about the age of 40. Early childhood and declining age are practically exempt from chronic functional headaches.

The increase of headaches as middle life approaches is really greater than is apparent from the figures, since there are nearly one-third less persons living at the age of 35 to 45 than at the ages 10 to 20.

The exciting causes are:

1. Hæmic causes, in which impoverished or poisoned blood is brought to the brain, as in:
   - (*a*) Anæmia.
   - (*b*) Diathetic states:
     - gout,
     - rheumatism,
     - diabetes, etc.
   - (*c*) Infections:
     - malaria,
     - syphilis.
   - (*d*) Uræmia.
2. Toxic causes:
   - lead,
   - alcohol,
   - tobacco, etc.
3. Neuropathic states:
   - epilepsy,
   - neurasthenia,
   - chorea,
   - hysteria,
   - neuritis.
4. Reflex cause:
   - ocular,
   - naso-pharyngeal,
   - auditory,
   - dyspeptic,
   - sexual—uterine.
5. Organic disease.

This classification of headaches, based on the etiology, is very much like those usually given.[1] I have not included the so-called hyperæmic or congestive headache, however, because I have never met cases of this character which I did not think were in reality migraines, or the results of organic changes following sunstroke or meningitis.

Even the much quoted anæmic headache is rarely due to anæmia alone, as close observation will show.

The relative frequency of these different types was found to be approximately—

Hæmic and toxic forms	35 per cent.
Dyspeptic reflex	25 "
Other reflex	10 "
Neurotic	20 "
Organic	5 "

The great majority of chronic functional headaches are thus seen to be due to bad states of the blood—*i. e.*, toxæmias and auto-toxæmias—and next to disorders of the gastro-intestinal tract. Such disorders cause headaches which are partly reflex, but sometimes there is no doubt a toxic element due to absorption of ptomaines of great importance in them.

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[1] The following classifications which have been made by different writers may be of interest:

Monneret:
- Neurotic.
- Congestive.
- Osseous.

Willis, Becquel:
- Accidental { essential. / symptomatic.
- Habitual { essential. / symptomatic.

Racle:
- Rheumatic.
- Congestive.
- Neuralgic.
- Anæmic.
- Neurotic.

Erb:
- Anæmic.
- Congestive.
- Toxic.
- Hysterical.
- Rheumatic.
- Reflex.
- Neurasthenic.

Of the typically reflex headaches the ocular rank first, while but few were due to nasal or aural irritation.

Next come the headaches of neurasthenia, epilepsy, and hysteria.

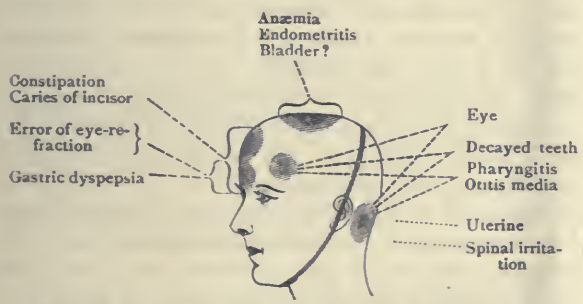
The toxic and diathetic headaches preponderate in the young, 27 out of 45 being under twenty years of age. The dyspeptic headaches belong to the age above twenty (19 out of 29), as do also the neurotic and organic head pains. On the other hand, ocular headache is more frequent in the young (66 per cent. under twenty).

In studying the etiology of headaches a question of much interest is that of the location and character of the pain.

Roughly speaking we have:

1. Frontal headaches.
2. Occipital headaches.
3. Parietal and temporal headaches.
4. Vertical headaches.
5. Diffuse headaches and various combinations of the above.

The most common form of headache is the frontal, next the fronto-occipital or diffuse, next the vertical, and then the occipital.



The significance of the location of the pain is a thing which has been studied with some care of late years.

In an article on "reflex pains" published in the *New York Medical Journal*, July 13, 1887, I tried to reach some conclusions on this point.

In making any general statements regarding this matter it would be safer and easier to speak of what does not cause a certain kind of headache than of what does.

For example, frontal headaches are rarely, if ever, due to uterine or pelvic irritation; neither are they due to aural or pharyngeal causes. Nor are they often due to troubles with the muscle-innervation of the eye. They rarely occur as pure frontal pains in the epileptic and neurotic.

Vertical headaches are rarely of toxic origin, and occipital headaches are not caused by anæmia or toxic conditions.

Modern studies of the subject of headache have brought into especial prominence the reflex factors in their causation. While the work of seeking for reflex causes has been probably overdone, yet much of practical and scientific interest has been elicited.

A brief review of this aspect of the etiology of headache may be in place here.

Ocular headaches. At the present time the eye is credited with giving rise to an immense number of head pains. Their location and character depend not only upon the pathological condition of the eye, but also upon the constitution and occupation of the patient. In my article already referred to, I gave some rules regarding the location and character of these headaches. They have been studied in still greater detail by Smidon. From my investigations, it seems to me that the most general rule which one can formulate is that headaches from refractive errors are usually frontal or orbital; those from muscular insufficiencies are more often occipital and cervical.

Naso-pharyngeal headaches. Nasal inflammations and hypertrophy cause dull frontal or diffuse headaches.

Enlargement of the pharyngeal tonsil may cause a dull, recurrent, occipital pain (Gradle, *Journ. Amer. Med. Association*). Follicular tonsillitis and hypertrophied tonsils may cause diffuse headaches; and in children obstruction of the Eustachian tubes may cause a diffuse headache.

Auricular headaches. Disease of the middle ear has been observed to cause temporal and occipital pains.

Gastric headaches, or *dyspeptic headaches*, when not accompanied with constipation, are often occipital, but sometimes frontal. Constipation and intestinal irritation usually cause a diffuse frontal headache.

Uterine and *ovarian headaches*, headaches from pelvic irritations, are almost always occipital and vertical. It is very rare to find pelvic irritations referred to the fifth nerve.

The view of Valleix, that most headaches were of uterine origin, is not all supported by modern observation.

A few words may be said regarding the character of some of the other kinds of head pains.

Neuropathic headaches. The typical hysterical headache or boring pain (*clavus*), is one rarely observed by me, and is often associated with spinal irritation. The neurasthenic headache is frontal and vertical, and is usually associated with a sensation of pressure or weight, and often with various cerebral paræsthesiæ. In spinal irritation, however, in its incipiency, or in mild types, there is a boring, occipital pain; while a still earlier symptom of a neurasthenic state is a neckache, or feeling of neck weariness, which the patient notices after trying to sit and hear a preacher or lecturer, or watch a play.

One type of the neurasthenic headache is frequently met with in brain-workers, coming on whenever the

mind or the eyes, or both, have been much overtaxed. Slight disorders of the eye or stomach, or a rheumatic or gouty tendency, are assisting factors in these headaches, and they are relieved by rest; or temporarily by antipyrin, an antirheumatic, or a bromide.

The *epileptic* headache is usually very severe, sharp, often vertical or occipital, not diffuse. It has more the character of a neuralgia.

The *organic headaches* are, as a rule, very characteristic. They are violent in character, and often associated with feelings of fulness and throbbing; nausea occurs frequently. They usually remit for a time, and then exacerbate. They are associated with other symptoms which usually make a diagnosis not difficult.

Syphilis causes a headache which is sometimes coronal or temporal, and is almost always partial, involving only a certain area in the skull. It is worse at night, and often comes on periodically, like a malarial headache.

Symptomatological Classification.—The term headache means a different thing with different persons, and in different types of the disease we have:

1. Pulsating, throbbing headache.
2. Dull, heavy headache.
3. Constrictive, squeezing, pressing headache.
4. Hot, burning, sore sensations.
5. Sharp boring pains.

The first form characterizes headaches with vasomotor disturbances and usually indicates migraine.

The second is a toxic, dyspeptic type.

The third is found in the neurotic and neurasthenic.

The fourth in rheumatic and anæmic cases.

The fifth in hysterical, neurotic, and epileptic cases.

Symptoms associated with Headache.—The symptoms oftenest associated with chronic and recurrent headaches are vertigo, somnolence, sensations of heat and pressure (cerebral paræsthesiæ), and nausea. Vertigo goes oftenest with headaches of dyspeptic origin; some of the so-called bilious headaches of early life develop later into attacks of vertigo; vertigo I found oftenest with frontal headaches.

Somnolence I found oftenest with anæmic and malarial headaches; it occurs also with syphilitic pains.

Nausea I found oftenest with occipital headaches.

Therapeutics.—The study of the etiology of chronic headaches is also a study of the therapeutic side; yet some general remarks may be made on this subject, approaching it from a different point of view.

The *treatment* of *headaches* of *young children*, for example, brings us into an almost special line of cases.

In the city of New York at least, these headaches are best treated as a rule by giving small doses of the iodide of iron or the citrate of iron and quinine. In school children headaches have often to be treated by removal from school, the use of tonics, change of diet, and the application of glasses suitable to any eye-defects that may be present. But glasses should be the last thing tried, unless the visual trouble is very marked. In some children arsenic acts well.

As to the *therapeutics of headaches of adults*: Headaches among brain-workers require, as a rule, a different class of remedies to those among muscle-workers. In the former class nervines like antipyrin, caffein, the bromides, act well, while attention to diet, exercise, and the eyes is especially required. Among the laboring classes, especially women, anæmia, malaria, syphilis, and rheumatic influences must often be attended to. There are sexual differences also to be borne in mind. In my experience, for example, antipyrin has been much oftener successful in men than in women. This may, however, be only a coincidence.

I shall conclude the subject of therapeutics with a few remarks on symptomatic remedies.

Among the best of these is muriate of ammonium in large doses, ʒss to ʒj, given in wafers.

In the headache of neurasthenia, I have found that gr. v of menthol in hot-water gives relief. In my wards at Bellevue Hospital a combination of menthol gr. v to x, and antifebrin gr. v to x, is often used. Phenacetin is also a good remedy. A practical point of importance in the use of antipyrin is the dosage. Often the best results are gotten by small doses frequently repeated.

The much advertised effervescent preparations for headache contain too small a dose of caffein or of bromide to be of the best service.

Of local applications a spray or lotion of aconitia; sheet lint soaked in twenty per cent. solution of menthol and wrapped on the head; solutions of cyanide of potash after the method of Trousseau; Rithet's tobacco and quinine snuff, are some of the measures indicated.

Every one meets now and then with cases of headache of obscure origin, obstinate in character and intractable to every kind of treatment. The use of iodide of potassium and of the strong galvanic current and static electricity has been of service to me in some such cases. The possibility of a diffuse neuritis as a cause of the pain in certain of these cases should be borne in mind.

50 West Forty-sixth Street, Feb. 4, 1889.

MEDICAL PROGRESS.

The Suspension Treatment of Locomotor Ataxia.—Dr. Paul Blocq has recently read a paper at the Société Médico-Pratique (*Rev. Gén. de Clinique*, Feb. 14, 1889) on the results of Dr. Motchonkowsky's treatment of locomotor ataxia by suspension, as carried out for the last few

months at the Salpêtrière. The treatment was suggested to Dr. Motchonkowsky, of Odessa, by observing the benefit which an ataxic patient, also suffering from spinal curvature, derived from the suspension required in applying a plaster jacket. On suspending other ataxics in a similar manner, he found that very marked improvement in the lightning pains and the motor incoördination followed, and vesical and sexual power was restored.

At the Salpêtrière fifteen patients have been submitted to 900 suspensions since last October, with marked benefit in many cases. The most usual signs of improvement were the reëstablishment of sexual function, the disappearance of bladder troubles, diminution and disappearance of the lightning pains, with improvement in motor coördination, so that patients who had only been able to walk with the help of an attendant on one side and a staff on the other, could leave the hospital after treatment without help of any kind.

Dr. Paul Blocq has also applied suspension with benefit in Friedreich's disease. The suspension was applied two or three times a week for periods varying from thirty seconds to three minutes each time. Improvement in walking began in the case of a girl, aged fourteen, in the second week of treatment. Later, a spoon could be carried to the mouth with the eyes closed, and she now learns the piano, writes with little tremulousness, can walk better, can stand with the eyes closed, and the catamenia have become established. The tendon reflexes are, however, still wanting, and scansion and nystagmus remain.

As Professor Charcot remarked, these results in a disease which has always been slowly progressive and almost invariably fatal, are worthy of attention. He suggests that the suspension may act by modifying the circulation of the spinal cord, or by stretching the nerves as they leave it. Whatever its *modus operandi* may be, it is certain that suspension is an agent of considerable power, since serious accidents have occasionally happened during the application of a Sayre's jacket, and it is, therefore, to be used with discretion and care.

We understand, also, that a number of patients suffering from various forms of chronic degeneration of the nervous system are being treated by suspension in various London hospitals. It is, of course, too early to form any definite opinion of the value of this treatment; but, so far, the results have been encouraging. A patient at present in St. Mary's Hospital was "suspended" on January 22d, and at intervals from that day, by Dr. de Watteville, physician in charge of the electro-therapeutical department, who has reported the case as progressing satisfactorily. The most apparent improvement consists in the increase of gait and equilibration, as manifested by the ease with which the patient can turn around when ordered to do so. Dr. Althaus informs us that he has found it beneficial in two cases of tabes; lightning pains in the one case, and in the other gastric crises, have ceased. In a case of severe paralysis agitans the tremor ceased for thirty-six hours after the first suspension.—*British Medical Journal*, February 23, 1889.

The *Berliner klin. Wochensch.*, No. 8, reports that the suspension treatment has been tried in the clinics of Professors Eulenberg and Mendel with equally favorable results, the suspensions, which took place three times a week, being at first of one minute's duration, increasing by half a minute up to three minutes. About twenty patients have thus been treated; and although, of course, the time is too short to announce any very positive results, two facts have been found to follow the treatment, viz.: 1. A certain number of patients have, immediately after the suspension, a readier and freer gait, less staggering, and complain less of lancinating pains (in some, also, improvement was noted in visual symptoms). 2. No ill effects have followed the practice. Our contemporary warns physicians and the public from hasty and exaggerated hopes in its efficacy.—*Lancet*, March 2, 1889.

The Etiology and Operative Treatment of Carcinoma of the Breast.—Dr. Fink, at a recent meeting of the Society of German Physicians, held at Prague, read a report upon the researches made by Dr. Redner, at Professor Gussenbauer's clinic, into the etiology and operative treatment of carcinoma of the breast. The principal points dwelt upon were:

Age.—Of those affected, 128 out of 194 were between 40 and 60 years, 28 between 20 and 40 years, and 38 between 60 and 80 years. Average age, 51½ years.

Function.—Of the 194 cases, 140 (72.1 per cent.) had borne children, and 122 of these 140 (62.8 per cent.) had nursed their own infants. It would thus seem that the repeated, as well as the prolonged, action of the mammary glands and the changes taking place therein, in consequence of such reaction, would favor the development of carcinoma.

Traumatism.—In 25 cases (12.7 per cent.) the causative connection between mechanical action on the mammary gland and the development of carcinoma was easily traced, as the tumor developed immediately after traumatic irritation had taken place.

Heredity could not be established.

The *treatment* consisted in amputation of the breast, which was performed on 153 patients. In nearly all the axillary space was cleaned out at the same time. The mortality ran up to 3.3 per cent., which must be taken as a most favorable result considering the unfavorable sanitary conditions of the wards, which contained, besides the patients operated upon, cases of phlegmon, erysipelas, and other wound-contagions. From experience the author concludes that in every case of removal of the breast for carcinoma the axillary space should be completely cleaned out, even though the axillary glands should seem free from infection.

Relapse was noticed in 97 cases, of which 90 died. In all these the process was far advanced, and the axillary glands implicated.

A *cure* was established in 29 cases (16 per cent. of those operated upon)—that is, three years have elapsed since the last operation, and no symptoms of reappearance have thus far been observed. Even those in whom a relapse occurred lived seven months longer when operated upon than did those who were left to die without surgical interference.—*Wiener med. Presse*, Feb. 17, 1889.

Treatment of Pityriasis Versicolor.—

℞.—Salicylic acid . . . . 3 parts
Precipitated sulphur . . . 10 "
Lanolin } . . . āā 50 "—M.
Vaseline }

To be applied to the scalp at night and washed off in the morning with soap and water. Continued for one

week, this treatment will almost always effect a cure.—*L'Union Médicale*, February 21, 1889.

On the Period for Surgical Interference in Acute Intestinal Obstruction.—DR. B. W. RICHARDSON recently read before the Medical Society of London a paper on this subject, confining his remarks to acute attacks. He summarized his conclusions as follows: 1. That in all cases of acute intestinal obstruction the use of milder measures, such as purgatives, enemata, massage, etc., might safely be carried out until the supervention of fecal vomiting. 2. That as soon as this was established an exploratory incision into the abdomen should be made without delay. 3. That obscurity of diagnosis, in the presence of this symptom, ought not to be allowed to stand in the way of an operation. 4. That clinical experience showed that there was very little chance of recovery when once stercoraceous vomiting had declared itself unless an operation was performed. 5. That fecal vomiting was a symptom of much more gravity than would attach to the mere mechanical effect of obstruction. 6. That symptoms of collapse were not a contra-indication to operative interference.—*British Medical Journal*, February 23, 1889

Salicylate of Mercury in the Treatment of Syphilis.—DR. SILVA ARANJO, at a recent meeting of the General Polyclinical Society of Rio de Janeiro, read a paper on the therapeutic uses of salicylate of mercury, for which he claimed the following advantages:

1. It is easily supported by the stomach; it does not produce gastralgia, colic, or diarrhœa, symptoms which are so frequently the outcome of the administration of other mercurial preparations, including the proto-iodide and tannate of mercury, which lately have been used very extensively.

2. Salicylate of mercury never produced mercurial stomatitis.

3. Taken internally it acts with greater promptness than any other mercurial preparation heretofore used.

Hearing of Dr. Aranjo's statement, Dr. Carl Szadek, of Kiev, administered this remedy to twenty-five syphilitics, and from the results he obtained confirms the statement of Dr. Aranjo.—*L'Abeille Médicale*, January 31, 1889.

Spontaneous Rupture of the Spleen.—DR. BARRALLIER has recorded two cases of young sailors, about twenty years of age, who both died very suddenly of rupture of the spleen during a first and mild attack of ague. The first returned to his duty, and soon afterward was found dead in his hammock. The peritoneum contained two and a half litres of blood; the spleen was ruptured, and also contained a large clot not communicating with the laceration. The second patient was seized with a sudden feeling of faintness on getting out of bed to go to stool. He was replaced in his bed, but died in a few minutes. The peritoneum was full of fluid blood and clots, and a large rent was found in the capsule of the spleen. In both the above cases the splenic pulp was softened, and there were no adhesions of the capsule to neighboring structures. Dr. Barrallier described in the *Archives Générales de Médecine* a case of an opposite character, very instructive for the sake of comparison. The patient was a workman at the Rochefort Arsenal, aged fifty-four, intemperate, prematurely old, and for long subject to ague. He fell from a height, and struck the left side of the lower part of the thorax against a stove. Symptoms resembling those of hæmato-thorax set in; aspiration was performed, but the patient died a fortnight after the operation. The spleen was enormously enlarged, its capsule thickened and inflamed and universally adherent. There was, in the upper part of the organ, a cavity apparently representing a subcapsular rupture. The spleen projected upward, so that it was capped by the adherent diaphragm, and encroached on the left thoracic region. The enlargement and inflammation of the capsule were, to a certain extent, recent. The peritoneum was free from blood. Thus a severe blow was not sufficient to rupture the thickened capsule of a spleen long enlarged, whilst very gentle exertion caused, in two instances, the rupture of a spleen softened by recent disease, the capsule being thin, and not adherent to the neighboring structures. Hemorrhage in the latter cases soon destroyed life; the former did not die until morbid processes were set up afresh in the injured organ.—*British Medical Journal*, February 16, 1889.

Some of the Abuses of Etherization.—DR. GEORGE F. SHRADY, of New York, concludes an article upon this subject with the following *résumé*:

1. In commencing the administration of ether, the gradual method is to be preferred.

2. Its employment allows the lungs to empty themselves of residual air, prevents coughing and struggling, and places the organs in the best possible condition to receive and rapidly utilize the ether vapor.

3. After the stage of primary anæsthesia is reached, the more pure ether vapor the patient breathes the better.

4. The shorter the time of anæsthesia, and the smaller the amount of ether used, the less likely are the unpleasant sequelæ to occur.

5. The more evenly it is administered, the less shock to the patient.

6. Anæsthesia should be intrusted to experienced administrators only.

7. Many of the fashionable efforts to resuscitate patients are not only useless but harmful.

8. The minimum amount of force should be employed to restrain the muscular movements of the patient.

9. Mixed narcosis is often advisable for prolonged operations.

10. The utility of the galvanic battery, in threatened death, is yet to be proven.

11. The most trustworthy means of resuscitating desperate cases are artificial respiration, hypodermatic stimulation, inhalation of nitrite of amyl, and inversion of the body.—*Medical Record*, February 23, 1889.

Treatment for the Cure of Perineal Urinary Fistula.—DR. W. THOMSON, of Dublin, recommends in a case of long-standing fistula, with considerable riddling of the perineal structures, in the first place thorough slitting and scraping or clipping out of all fistulous tracts; the retention of a catheter through the perineum for several days, so as to prevent the passage of urine along the old paths; and then the opening of the bladder above the pubes by a small incision, so as to divert the urine in that direction. The suprapubic opening should be maintained until there is firm closure of all perineal

fistulæ. There need be no fear of the superior opening into the bladder remaining permanent, once one is in a position to permit urination by the urethra. The tendency of such tracts is to become obliterated when they are kept at rest and are relieved from the passage of urine through them. If, however, the closing should be delayed, the edges could be pared and the lips be brought together with a pin or two and a twisted suture. —*British Med. Journal*, Feb. 9, 1889.

Treatment of Chlorosis.—Dr. Henry Huchard, who has written extensively upon this subject, affirms the statement of Dr. Trousseau that, as a rule, too much iron is given in this affection. The system always contains some iron, no matter how severe the type of chlorosis; this iron is never so deficient as to warrant the administration of such large doses as are generally given. The author frequently prescribes the following:

℞.—Prepared chalk
Powdered roasted coffee } . āā 3 grs.
Powdered rhubarb
Iron filings . . . . ¼ gr.—M.

Make one capsule. To be taken before each meal.

Chlorotics are very fond of vinegar; its use should not be entirely prohibited, as it stimulates the flow of the gastric juice, as shown by Claude-Bernard. It can, however, be replaced by the following:

℞.—Hydrochloric acid . . . gtt. vj.
Lemon syrup . . . . ℥v.
Water . . . . . ℥iv.—M.

One teaspoonful after each meal.

Constipation is to be overcome with small doses of podophyllin or cascara sagrada. If the uterine functions are abnormal, they must receive treatment.

Many chlorotics cannot take iron in any form; it is then that preparations of arsenic and manganese are of service.

℞.—Extract of cinchona } . . āā ℥ijss.
Extract of gentian }
Arsenate of soda . . . gr. 1½
Glycerine . . . . . q. s.—M.

Make 100 pills. Two pills to be taken at the beginning of each repast for six weeks. Should there be anorexia present, fifteen grains of powdered nux vomica can be added to the above.

Or

℞.—Charcoal (poplar) } . . āā 75 grs.
Oxide of manganese }
Powdered calumba } . āā 8 " —M.
Powdered nux vomica }

Make 20 powders. One powder with each meal in the flatulent dyspepsia of chlorosis.

When, however, iron is well supported, the author prescribes the following, which he has used with the greatest success for some years:

℞.—Extract of cinchona }
Extract of gentian } . . āā 75 grs.
Extract of rhubarb }
Tartrate of iron and potassium 75 grs.
Extract of nux vomica . . 8 "
Oil of anise . . . . gtt. v.
Glycerine . . . . q. s.—M.

Make 100 pills. Two pills before each meal two or three times daily.—*Revue gén. de Clin. et de Thérap.*, February 21, 1889.

Infectivity of Phthisical Sweat.—Dr. Eugenio di Mattsi (*Bulletin Médicale*) has made several experiments to determine whether the perspiration of phthisical subjects (in which Severi, in 1884, found the tubercle bacillus) was infectious or not. In the first series of his researches the author obtained the perspiration by simply scraping the skin with a bistoury. The adhering matter was deposited on a watchglass, and then passed rapidly, three times in succession, through the flame of an alcohol lamp, and then colored after the Koch-Ehrlich method.

These researches, made with the perspiration of eight phthisical subjects whose sputum contained the bacillus of Koch, and at different periods of the disease, proved that the perspiration of phthisical subjects (at least in these instances) contained micrococci of variable dimensions, bacilli similar to those of tuberculosis, and fragments of cells, etc. These deposits, when cultivated, gave rise to the development of two colonies of tubercle bacilli. Four rabbits, inoculated with these cultures, succumbed to tuberculosis. Of ten rabbits inoculated directly with the phthisical perspiration, which was introduced into the anterior chamber of the eye, eight developed tuberculosis.

With the second series the author proceeded differently, the perspiration being only removed after the strictest antiseptic precautions had been taken. The skin was first washed with soap and water, then with alcohol of ninety per cent., then with a sublimate solution of 1: 1000, and lastly with sterilized water; the body was then thoroughly dried, and a large watchglass applied, wherein the perspiration accumulated; this glass was removed after two or three days. The experiments made with this perspiration gave results which were absolutely negative so far as the search for tubercle bacilli, the cultivation and the inoculation of animals were concerned.

From these experiments the author reaches the following conclusions:

1. The perspiration of phthisical subjects contains the bacillus of Koch, and is consequently infectious.

2. These bacilli are not eliminated from the body through the perspiration, but come from the sputum of phthisical subjects, and are suspended in the air and attached to the linen of the patient.

3. Phthisical subjects should not spit on the floor, and their wearing apparel should be disinfected before being handled.—*Gazette Médicale de Montréal*, January, 1889.

Ignipuncture of the Tonsils.—Dr. Wilhelm Roth, of Fluntern, finds that in order to reduce the size of the tonsils without risk of troublesome hemorrhage, which is not uncommon, especially in young subjects, the best plan is to employ ignipuncture, as has been recommended by Krishaber, and more recently by Verneuil. The tonsils and neighboring parts are first brushed over with a ten to twenty per cent. solution of cocaine. The finest point of the thermo-cautery, heated to redness, is then inserted to a depth of about five millimetres in three or four spots a few millimetres apart from one another on the tonsils. The instrument is not allowed to remain more than one or two seconds in the tissue. The whole operation, in-

cluding both tonsils, can be performed in a very few minutes without any bleeding, and with scarcely any pain. It must be repeated four or five times at intervals of two or three days, and this is usually sufficient to cause the tonsils to return to their ordinary condition.—*Lancet*, February 16, 1889.

The Prevention of Rabies by Pasteurian Inoculation.—The inoculations performed last year at the Odessa Bacteriological Station against bites from rabid animals show results no less satisfactory than those of the preceding year. The number of persons inoculated was 454; of these, 398 were bitten by rabid dogs, 38 by cats, 7 by wolves, 3 by a man suffering from hydrophobia, 1 by a rabid cow, and another by a wild boar. Six persons underwent inoculation simply as a preventive measure. The patients actually bitten by rabid animals may be divided into three classes. First, are the dangerously wounded—that is, persons bitten on the head, face, or arms; of these there were 89. Of the second class—the slightly wounded—there were 206; and in the third category, of those who had received bites through their clothing, there were 158. In only 44 out of the total 454 cases treated was the actual presence of rabies in the animals inflicting the bites not conclusively proved. Two patients died after the inoculatory course prescribed, but both these cases belonged to the dangerously wounded class, one of these patients being dreadfully lacerated about the head by a rabid wolf. Altogether six patients died during or after the inoculations. Of 7 persons bitten by the same rabid wolf, 1 succumbed. Of 44 persons bitten by other rabid animals, 5 died, giving a percentage of 11; of these, 4 were dangerous cases. In the 158 who were bitten through the clothes there was no fatal case.—*British Med. Journal*, Febuary 16, 1889.

Treatment of Erysipelas.—DR. W. EBSTEIN, of Breslau, details a method introduced by Prof. Rossenbach into the Allerheiligen Hospital of that city. The basis of this treatment consists in limiting the spread of the disease to as small an area as possible. To accomplish this the healthy skin surrounding the infected portion is thoroughly cleansed with soap and water; then a strip of healthy skin, bordering on the diseased portion, is, after being thoroughly dried, anointed with five per cent. carbolated vaseline; this done, the same ointment is applied to the diseased portion, but in order to avoid infecting any healthy tissue, *the applications must be made from the healthy toward the diseased portion and never the reverse.*

The result of this treatment (which was applied to twenty-seven cases of erysipelas of the head, face, neck, and leg) were most satisfactory. All recovered; the duration of the disease was relatively a short one, and in but few instances did the affection overstep the boundary line; and when it did, only for a short distance, and for a brief period.—*Deutsche med. Wochenschrift*, February 7, 1889.

Thymol in the Treatment of Typhoid Fever.—At the Congress of Medicine held in Rome last October, DR. TESTI related his experience of thymol in more than 150 cases of typhoid fever treated in the hospital of Faenza. The results were most satisfactory. The temperature was reduced not, he maintained, by the withdrawal of heat from the body, as is the case with ordinary antipyretics, but by moderating its production. The antiseptic action of the drug was also marked; it diminished tympanites, checked diarrhœa, and notably lessened the putrefactive products usually found in the excreta. Dr. Testi also states that on microscopic examination he found a remarkable diminution in the number of mucous corpuscles, epithelial débris, and parasitic elements (especially granular) in the stools. The drug has also a marked effect in reducing the excretion of urea, and as it increases the blood pressure it has no injurious influence on the action of the heart. Dr. Testi strongly recommends thymol in typhoid fever as mitigating the severity of the disease and preventing complications.—*British Medical Journal*, February 23, 1889.

The Duration of Pregnancy.—DR. CLEMENT GODSON, in a paper in the twenty-fourth volume of the *St. Bartholomew's Hospital Reports*, discusses a recent *cause célèbre* in which the duration of pregnancy was one of the questions in dispute. The mother of the child whose legitimacy was in question, had eloped on June 30, 1884, and a divorce had been obtained in consequence. She was taken in labor at four A.M. on April 2, 1885—*i. e.*, 276 days since she had left her home, and it was not denied that she had slept with her husband up to that time. She had commenced to menstruate on the evening of the day before she left her home, that being the proper date for the appearance of the menses; the menstruation was, however, slight, and ceased on the third day, whereas previously it had always lasted a week. There were, therefore, two points raised against the legitimacy of the child: first, the duration of the pregnancy, 278 days, and second, the menstruation after conception. These points are discussed by Dr. Godson at some length, and he shows conclusively that 278 days is by no means an unusually long period for gestation, and that menstruation during the early part of pregnancy is quite common; indeed, it seems to be the rule almost that conception takes place just before a menstrual period is expected. The jury, however, found a verdict against the legitimacy of the child, after a deliberation of only two minutes, their decision doubtless resting on purely moral considerations, certainly not on any legal presumption, which would have been the other way.—*London Med. Recorder*, Feb. 20, 1889.

Bismuth Salicylate in the Treatment of Diseases of Children.—DR. EHRING has employed bismuth salicylate (Merck's) in 200 cases of dyspepsia, acute and chronic gastric catarrh, gastro-intestinal catarrh, enteritis, phthisical diarrhœa, acid diarrhœa, and dysentery. He gives it, suspended in glycerine or mucilage, because of its insolubility, and because children take pills and powders badly. It is not contra-indicated in constipation. The urine soon becomes more acid, and gives a distinct salicyl reaction; the stools never give this reaction, but quickly become dark in color. He has never seen symptoms of poisoning. He is far from seeing in the remedy a panacea for all cases, but says that when combined with a suitable diet it is most useful and worthy of trial. Its action on the urine suggests that its employment in cystitis may be advantageous.—*London Med. Recorder*, February 20, 1889.

The Medical News.

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SATURDAY, MARCH 16, 1889.

THE CONNECTION BETWEEN POLLUTED WATER AND TYPHOID FEVER.

THE wide distribution of typhoid fever over the surface of the globe, amongst civilized nations at least, and the great mortality which it causes every year, have imparted to the question of its prevention a very general interest. As prevention depends upon a knowledge of the cause, the discovery of the potential agent and the mode of its propagation and the means of its communication are the prime objects of investigation. The germ theory of the origin of typhoid fever seems to have been established upon a substantial basis. The media by which the infection gains access to the human body are various. The digestive tract is the main avenue of entrance of the microörganism, which is frequently contained in water and food.

From the liability of water to contamination, it has been the principal subject of investigation in all attempts to discover the origin of epidemics of this disease. The well-authenticated outbreaks of typhoid fever dependent upon the use of water polluted by the dejecta of fever patients would seem to leave no room for doubt that water is a common means of conveying the pathogenic organism which incites the disease; and while our knowledge of the subject is not sufficiently precise to warrant exact deductions, there is not wanting evidence of the cumulative sort in connection with recent outbreaks of typhoid fever, which is so conclusive of the mode of infection by specifically contaminated water as to justify its acceptance even without the positive demonstration which improved methods of bacteriological investigation will some day be able to furnish.

At the International Congress for Hygiene and Demography, recently held in Vienna, the relation of the water-supply to the origin of diseases formed a prominent subject of discussion. Numerous instances were related of the influence of drinking-water in spreading infectious diseases, especially typhoid fever. Most of the epidemics described were of recent occurrence, and the evidence seemed to indicate that polluted water was the starting-point of all these outbreaks. The absence of proof of the existence of the specific bacillus in the water before the epidemic occurred, and our inability to differentiate with certainty between the typhoid bacillus and similar bacteria found in water and in the soil, were mentioned by Hueppe and Emmerich as weakening the chain of evidence. The section, however, unanimously adopted the following proposition: "In view of the demonstrated possibility of drinking-water and water used for domestic purposes giving rise to disease, the provision of good, unsuspicious water is one of the weightiest measures of public health."

It would be well if the water purveyors of our cities would adopt this maxim as a guiding principle. Sewage contamination of our rivers, which are the chief source of domestic water-supply, is increasing year by year. The increasing prevalence of typhoid fever would seem to point to this unwise and pernicious practice as the cause. Foreign countries have learned by disastrous experience the unwisdom of this practice. Shall we profit by this experience, and, without waiting for the inevitable, prevent that which it will be infinitely more difficult to remedy in the future?

THE PYLORIC SPHINCTER.

THE cause of the relaxation of the sphincter pylori in order to permit the passage of the chyme is a problem of which the solutions hitherto proposed are unsatisfactory. After reviewing the principal hypotheses advanced to explain this phenomenon, OPPENHEIMER (*Deutsche medicinische Wochenschrift*, No. 7, 1889) concludes that its cause is not to be found within the stomach, but that, on the contrary, every irritation within that viscus causes a contraction of the pyloric orifice. Several facts speak strongly in favor of the view that an irritation in the small intestine is the starting-point of this

passive movement. For example, in cases of ileus, the contents of the intestine enter the stomach and, on the other hand, in cases of intestinal fistula situated near the stomach, it has been observed that the contents of the latter are emptied into the intestine much more rapidly than under normal circumstances. Finally, the administration of cathartics, which exert their irritant action solely upon the intestine, causes a rapid evacuation of the contents of a dilated stomach.

In accordance with this view, the relaxation of the sphincter is the result of certain muscular actions which have their origin in the duodenum. It has been the custom to regard the longitudinal muscular layers of the stomach as starting from the œsophagus or the cardiac orifice, spreading over the borders and surfaces of the organ, passing, some of them, beyond the pylorus and becoming continuous with the longitudinal layer of the duodenum. It is just as easy, as Oppenheimer suggests, to regard the latter fibres as arising in the duodenum, of which the vertical portion affords them a comparatively immovable point of attachment. The contraction of these fibres synchronously with that of the thick longitudinal band occupying the smaller curvature, which is continuous with the fibres of the right side of the œsophagus, will, according to the author quoted, draw the pylorus somewhat obliquely to its usual plane and, at the same time, open its orifice.

The next question concerns the source of the irritation which excites the contraction of these gastro-duodenal fibres, and a clew to its answer is given by certain observations of Oser. This experimenter found that irritation of the splanchnic nerve within the chest causes relaxation of the pyloric orifice. This is readily demonstrated by hydrostatic pressure. A certain amount of such pressure in the duodenum will overcome the pyloric resistance, but a decidedly smaller amount will do so if synchronously with its application the splanchnic nerve within the chest be irritated. Oser supposes the nutriment absorbed by the blood during stomachal digestion to be the physiological irritant which excites this motor action of the splanchnic. This explanation is unsatisfactory, and is not accepted by Oppenheimer, who thinks he finds a better in one of the immediate consequences of Oser's experiment, viz., anæmia of the duodenal bloodvessels. According to this theory, when the duodenum is empty, its bloodvessels are anæmic and the pyloric orifice is open. The chyme now enters it, causes congestion of its bloodvessels and the sphincter closes. The duodenum empties its contents into the ileum, again becomes anæmic, and again the sphincter opens, and so on until the stomach has become empty.

The theory is in harmony with the physiological facts of muscular contraction, but cannot be generally accepted until experimental evidence is brought to its support. Certain apparent contradictions which it involves must also be reconciled. Examples of these are found in the statement that the stomach empties itself with more than normal rapidity after the administration of a cathartic which exerts its action solely on the small intestine, as well as in cases of intestinal fistula seated near the pyloric orifice. Certainly in the former case and, in all probability, in the latter, the condition of the bloodvessels of the duodenum is one of congestion.

It would apparently be a simple matter to repeat the experiment of Oser from the stomach side of the sphincter. If the view of Oppenheimer is correct, the degree of pressure necessary to overcome the pyloric resistance would be materially lessened by exciting the contraction of the gastro-duodenal fibres. Admitting this view to be upheld by experimental facts, it would still remain to be determined whether the contractions of these fibres have their physiological origin in anæmia of the duodenal vessels, a problem which, from the nature of the case, would be much more difficult.

AT the annual commencements recently held, the degree of Doctor of Medicine was conferred on graduates as follows: University of the City of New York, 180; Bellevue Hospital Medical College, New York, 138; University of Tennessee, 61.

THE Johns Hopkins Hospital will be opened to the inspection of the public, before the reception of patients, during the week beginning May 6, 1889.

On Tuesday, May 7th, at 11 o'clock in the morning, there will be appropriate addresses in the main administration building. Invitations to be present will be sent to the authorities of the city and State, to those who have rendered special services in promoting the plans of the Hospital, to professors of medicine and surgery, to the chief managers of other hospitals, and to the representatives of the press.

The Dispensary will be opened for the treatment of outdoor patients on Monday, May 13, at 10 o'clock. The Hospital will be opened soon after-

ward for the treatment of patients sent to it by the head of the Dispensary.

The Kentucky State Medical Society holds its next annual meeting at Richmond, during the second week in May. This promises to be a meeting of special interest, from the fact that the new medical practice act goes into operation on the first of April next, and the profession has not risen to a recognition of the importance of the registration provisions of the act. It is reported at Louisville, for instance, that not one in five of her qualified practitioners has registered, although less than thirty days remain of the time given by law for the registry. It would seem a matter for regret if a want of harmony in regard to some points of minor importance should militate against a cordial support of this progressive measure. All those who are quackishly inclined will inevitably use any alleged indifference and neglect on the part of the better class of physicians as an argument against the adoption of any legislative steps toward the purification of medical practice. The law may not be the most perfect of its kind, but it has been endorsed by the State Medical Society and by the State Board of Health, and is at least an entering wedge for stronger reformatory measures. Let it have a fair trial.

The North Carolina State Sanitary Association held its first annual convention in February, which was largely attended by physicians and sanitary officers. The movement is in harmony with the State Board of Health, and will have for one of its first objective points the promotion of pure water supplies for those towns and cities which have neglected this important requisite.

Dr. S. Weir Mitchell has just been elected a corresponding member of the Verein für innere Medicin, of Berlin.

The students of the Charleston Medical College have presented a memorial cup to Dr. John Guitéras, on the occasion of his leaving Charleston to assume the duties of his professorship at the University of Pennsylvania.

The Russian Government is about to erect a building for the education of women in medicine. The graduates of this institution will be compelled to limit their practice to the treatment of women and children.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 7, 1889.

The President, Alfred L. Loomis, M.D., in the Chair.

Dr. Francis Delafield read a paper on

THE TREATMENT OF ACUTE AND SUBACUTE NEPHRITIS.

(See p. 287.)

Dr. Thomas E. Satterthwaite, who was expected to take part in the discussion, was unable to be present, but sent a communication on the subject, which was read by the Secretary.

In considering the treatment of Bright's diseases, whether we call them acute, subacute, or chronic, two important facts, he said, at once confront us. One is, that there are quite different pathological conditions underlying the several manifestations of these affections; the other is, that very few of them are primary diseases, but rather dependent on some antecedent morbid condition or dyscrasia of the general system. He presumed, of course, that we were discussing such kidney troubles as are associated with the classical group of symptoms that relate to serum-albumin, casts in the urine, altered specific gravity, disordered digestion, abnormal volume of water, etc., all of which we find in the following pathological states:

1. Where there is simply renal congestion.
2. Acute diffuse nephritis.
3. Chronic diffuse nephritis.
4. Acute parenchymatous nephritis.
5. Chronic parenchymatous nephritis.
6. The sclerotic kidney.
7. The waxy kidney.
8. The gouty kidney.

He did not wish to appear as pretending that we can always diagnosticate each of these several forms of Bright's disease, or that it is essential for us to do so; but he did desire to have it understood that the more clearly the pathological condition of the kidney and its relation to disease elsewhere in the body is appreciated, the better is the physician prepared to treat it successfully. And his experience had taught him that any intelligent and properly trained physician, after thorough examination into a case of Bright's disease will rarely err in properly classifying. Hence these remarks had a practical bearing on the matter of treatment; for, supposing that our patient had a tumor pressing on the renal veins, or that there was a sudden embarrassment of the pulmonary circulation from a pericardial or pleuritic effusion, and that symptoms of renal inadequacy immediately supervened, it was plain to any one that our efforts should first be directed toward removing the cause. In other words, we should try to get rid of the tumor or dissipate the fluid. Of course, general treatment for the urinary symptoms was important, according to the gravity of the situation. Or, suppose that we have under consideration a case of acute diffuse nephritis from a blow on the loins, or from exposure to cold, or perhaps from an operation along the line of the genito-urinary tract. It is apparent now that the disease is intrenched in the kidney, and is

purely a local affair. Hence, any of the recognized forms of treatment which will restore the normal function of the kidney will apply here.

But in chronic diffuse nephritis, it matters not what is the stage of the disease, whether the organ be pathologically large or medium sized, or small, ultimate success depends largely, he thought, on our ability to manage certain antecedent or concomitant affections; for he believed that articular rheumatism and endocarditis or pericarditis are its determining causes in from fifty to seventy-five per cent. of all cases, and also that phthisis has some etiological relation, the nature of which is very obscure, to the disease. Other factors, too, have their influence, but he considered it comparatively rare for what has been called the acute idiopathic form to become subacute or chronic. Hence it follows that we should always aim to counteract the prevailing diathesis, be it rheumatic, or lithæmic, or phthisical; and it is more especially in this variety of Bright's disease that the diet should be carefully ordered.

Again, in acute parenchymatous nephritis there is an antecedent and determining disease in most cases, probably in all. It is the kidney type of diphtheria, the exanthemata, such as measles or whooping-cough, pneumonia, and the continued fevers. In fact, it seems as if the affection resulted from increased work thrown on the kidneys, owing to the temporary embarrassment or inactivity of other emunctories. Hence, too, no absolute rules can be laid down for treating all these cases. In diphtheria we may press the skin and bowels into service to aid the kidneys; but in the eruptive fevers we have only the lungs and the bowels to work upon. He thought there could be little doubt, however, that the lungs are capable of exhaling a large amount of effete matter.

Now, in chronic parenchymatous nephritis it is also well to remember that the disease is secondary, existing as it does in fully seventy-five per cent. of all cases of pulmonary phthisis, and also that the fatty infiltration, or even degeneration, of the renal parenchyma is not necessarily destruction of the texture of the kidney. In fact, there is reason to believe that, with a cessation of the suppurative process, there is, to some extent, a corresponding diminution in the fatty deposit within the epithelial cells and a more or less perfect return to the normal state. Hence, when this form of lesion exists, the suppurative process must be checked and subdued if we expect any permanent relief for the patient. This statement applies equally well to the treatment of the waxy state; for it is to be presumed that a waxy infiltration of renal vessels is not necessarily permanent. Finally, in the sclerotic or contracted kidney we have a disease that contrasts markedly with the other forms, since, owing to the profound implication of the vessels and heart, accidents are always prone to occur along the line of arterial distribution; so that the danger of hemorrhage is here superadded to those of cardiac or respiratory failure, any one of which may cause instantaneous death, without much previous warning.

Here, then, are some special indications that are to be met, and which can be met successfully, for the time, at least, by remedies that lessen arterial tension, such as ergotin, glonoin, or the bromides. But, after all due recognition of these special considerations which govern each of the different classes of cases, and separate examples of each variety, there are certain general methods that are no less essential to utilize in combating individual symptoms. And, first, we do well to remember that the kidney can be safely stimulated in almost any event. Local applications are usually of the greatest value, especially in urgent cases. To the loins may be applied dry cups (wet cups are seldom needed), rubefacients, and ordinary poultices. The digitalis poultices often used in our hospitals for cases of suppression are effective, but may produce alarming symptoms. In subacute cases, associated with a lithæmic history, salicylic acid in ten grain doses three times a day will not only counteract the lithæmic vice, but promote the flow of urine.

In more or less chronic cases, the muriated tincture of iron will decidedly increase the flow of water, and Dr. Satterthwaite is in the habit of giving it often for months at a time. In less chronic cases, he combines it with Hofmann's ether. The free use of cold water as a beverage, in large quantities, is also of great value, as it scours the kidneys and rids them rapidly not only of excrementitious matter, but also of casts and degenerated epithelium. Alkalies have also a diuretic effect. He usually employs them where the patient has an alcoholic history. They are especially useful in the nephritis of pneumonia, and five grains of the carbonate of ammonium given every three hours to an adult will considerably increase the urine, while it has a most favorable action on the heart. But probably no remedy is so generally useful in urinary insufficiency as digitalis. Drachm doses of the infusion given at intervals of from three to four hours will almost certainly stimulate the kidneys to increased action, especially where the changes are chiefly in the epithelia.

To promote elimination by the bowels (an object to be held in view when treating eruptive diseases), occasional simple saline laxatives usually answer well, as they promote watery evacuations. If more brisk catharsis is needed, Rochelle salts in repeated doses will be effectual. In subacute or chronic cases, where constipation is a troublesome feature, he uses nux vomica, in pill form, for weeks and months at a time; and he has sometimes been surprised at the tolerance shown for the drug when continuously given in large doses. Hydragogue cathartics he seldom uses, except in extreme dropsy, and he then relies on elaterium in quarter of a grain doses.

Elimination by the skin he finds best accomplished by simple diaphoretics, such as spiritus Mindereri, or tincture of aconite root. When either is ineffectual, it may be found that the hot-air bath will prove a satisfactory substitute. Although he does not place much reliance in the hot-air treatment, because it is often disappointing, and thus a source of annoyance to the patient, there are instances where it alone will restore health. In the chronic nephritis of old people it may prove superior to all other remedial agencies. Given before bedtime, if free diaphoresis occur, it commonly induces quiet sleep. Pilocarpin in his hands has been a successful, and, at the same time, a dangerous agent. He has known it to save life and restore to comparative health, when the patient had long been buried in a profound coma; but he has also known the same amount given to the same person under apparently similar circumstances produce the most alarming symptoms. The physician who has decided to administer this drug should give it himself, and be prepared to treat the alarming syncope that may

supervene when its physiological effect has been obtained.

Nausea and vomiting, he believes, are best controlled by mercurials, and he has been in the habit of giving the hydrargynum cum creta, in five grain doses, every three hours. Calomel in small doses, say, of one-tenth of a grain, is also efficient, but there is, of course, the danger of salivation associated with its use. The act of vomiting, however, is sometimes salutary, as the stomach thus gets rid of poisonous excretions; and it is seldom a symptom that requires special treatment.

In conclusion, he stated that the successful management of Bright's disease calls for many kinds of remedial measures, and experience alone in any given case may, after all, have to be relied upon to determine what is the best mode of procedure. In the brief space of time at his disposal he had only had opportunity to outline some of the most manifest considerations in the treatment of this affection, as he reviewed it by the light of his personal experience.

DR. A. JACOBI said that the treatment which Dr. Delafield had so admirably outlined was, for the most part, that adopted by all rational physicians of the present day. His view of the subject of nephritis was much simpler than that indicated by Dr. Satterthwaite, with his elaborate classification, and he would recommend to the careful attention of the academicians not Dr. Delafield's present paper, but also the last fasciculus of his studies, in which he had done so much to rid the subject of Bright's disease of its difficulties and complexity.

There were a few points in regard to which he differed from Dr. Delafield. As to caffeine as a heart-tonic, it was, unqestionably, a powerful heart-tonic; but where there was any cerebral trouble he had found by experience that its action was detrimental instead of beneficial. He referred to the case of a woman recently admitted to his service at Bellevue Hospital, in a condition of profound uræmic coma. After the application of leeches to the septum narium, with the result of abstracting considerable blood, the patient recovered consciousness, and she then improved steadily; but he was confident that if he had resorted to the use of caffeine in this case it would have been followed by positive injury.

As to the bichloride of mercury, he had been in the habit for a number of years of employing it in cases of chronic interstitial inflammation of various organs, and he believed it to be the best "antiplastic" agent that we had, to use a term formerly much in vogue. Used for this purpose it should be given in small doses, and its regular administration persisted in for many months at a time. The only cases of cirrhosis of the liver (non-syphilitic) which he had ever seen getting well, were those in which the bichloride was employed in this way. The only cases of tabes, also, which he had seen getting well, or nearly well, were those in which this agent was used, and he referred particularly to one case of tabes in which the patient's condition was quite as good now as it was twenty-six or twenty-seven years ago, when it first came under observation. He had never seen such good results from any other plan of treatment, and he believed that the bichloride was equally efficient in interstitial disease of the kidneys, more especially when such disease was chronic. He had, in fact, used it with considerable success in a number of cases of chronic interstitial nephritis.

In acute nephritis, he thought we should be a little more successful if we took the trouble to look them up. All physicians were prepared to find the disease in connection with scarlet fever, but there were many other affections in which it was liable to occur as a complication. Thus, it was sometimes met with in connection with measles, and much more frequently with typhoid fever. If, therefore, it was more commonly looked for, many cases that now escape observation would be detected, and, doubtless, a considerable number of cases of chronic nephritis would thus be avoided.

That form of nephritis which occurred after the age of forty or fifty, as the result of vascular degeneration, he believed would be frequently benefited by the addition of the bromides to the other treatment. The bromides might be given to the extent of thirty or forty, or even fifty grains a day, but the latter quantity should not be exceeded. Some individuals were old at the age of forty, and the bromides were extremely beneficial when there was an atheromatous condition of the arteries. As to the use of digitalis in nephritis, he thought that it should unqustionably be avoided in the acute stage, on account of its irritant effect (whether this was produced by digitoxin or not); but even in older cases, where a cardiac stimulant was clearly indicated, he generally selected spartein, which had all the good effects, without the deleterious ones, of digitalis.

DR. F. P. KINNICUTT said it was well to bear in mind, in connection with disturbances of the circulation in nephritis, the fact that sudden death might possibly occur entirely independently of uræmia. Thus Goodhart had met with a case of this kind at Guy's Hospital, where dilatation of the ventricles, without valvular disease, was found as a result of the overwork to which the heart had been subjected.

Increased arterial tension was a condition always to be combated, and in overcoming it, he had found the vaso-motor dilators of more service than any other class of agents. Of these, the nitrites are unquestionably the most valuable; nitroglycerine was the drug most often used, and he was entirely convinced of its marked efficiency. In conditions of heart-failure from overwork a little different treatment was required, and here the combination of cardiac tonics with vaso-motor dilators was of most service; as, for instance, strophanthus or spartein with nitroglycerine. As to digitalis, it was apparently harmful on theoretical grounds, and it was better, he thought, therefore, not to use it. It had a tendency to cause the arteries, as well as the heart-muscles, to contract, and its interference thus with the free flow of blood in the vessels might perhaps explain its injurious effect.

DR. J. WEST ROOSEVELT said that in subacute nephritis the high arterial tension was a source of danger, though the nature of this danger was not properly appreciated. Except to the heart, from overwork, and except in old cases, from the degeneration of the vessels, there was no danger from this high tension itself. The trouble really was a spasmodic condition of the arteries and capillaries. Digitalis was apt to do harm by spurring on too much a heart that was already overworked. The vaso-motor dilators, in which he said he would include chloral hydrate, he thought preferable, although even these were somewhat clumsy in their action.

DR. JOSEPH E. WINTERS said that while change of climate, as recommended by Dr. Delafield, was doubtless of great benefit, there were many cases in which it

was impossible to secure this, and some other plan of treatment had to be adopted. In all cases it was important to observe carefully the amount of albumin in the urine, and in many cases of subacute nephritis he thought it well to treat the patients when they first came under observation as if the nephritis was acute: keeping them confined to bed for a number of weeks, if, in the meanwhile, the nutrition could be maintained. By rest, judicious feeding, and attention to the functions of the skin, the amount of albumin could be materially diminished; and, after all, the quantity of albumin passed was almost without exception the one symptom which indicated whether the condition were improving or not. In order to assist in diminishing it the amount of albuminous food taken should be as small as possible. Thus, eggs should be absolutely prohibited, and no meat allowed, except the white meat of poultry. Milk, fish, and an abundant use of fats, such as fresh butter, cod-liver oil, and cream are relied upon principally for maintaining nutrition. Iron was commonly used in the anæmia of subacute nephritis, but he should like to inquire whether it was well assimilated or not. When there was considerable œdema present he believed that the prognosis was better, so long as the serous sacs were free from it, than when it was very slight. The patient suffered less and was less liable to convulsions and other serious uræmic disturbances; and this might, perhaps, be because some of the urea found its way into the serum beneath the skin.

DR. LAURENCE JOHNSON said that he should like to say a few words in regard to the use of pilocarpin, alluded to by Dr. Satterthwaite. In acute uræmia he had been accustomed for a number of years to employ this agent with the happiest results, and especially in this condition when connected with pregnancy. Within the last few days he had been called to see a lady eight months pregnant, who was suddenly seized with a convulsion, without having previously had, so far as known, any kidney disease. Before he saw her she had had five convulsions within six hours, and the urine was found, on examination, to be heavily loaded with albumin. He immediately gave one-sixth of a grain of hydrochlorate of pilocarpin; in fifteen minutes a second dose of the same size, in twenty minutes more a third dose, and in two and a half hours later a fourth dose. The transudation of liquid produced by the drug was enormous, but there was no weakening of the heart. Within six hours the secretion of urine was reëstablished, and the subsequent improvement of the patient was entirely satisfactory. In one similar case that he recalled there was complete loss of vision. The patient was eight months pregnant, and delivery was promptly and forcibly accomplished. Vision was completely restored, and the child, as well as the mother, was sound. In still another case in which the pilocarpin was used with the happiest effects, the patient had convulsions before, with, and after delivery. Some time since he saw in consultation with Dr. J. Lewis Smith a child nine years of age, who was suffering from acute uræmic poisoning as a complication of simple bronchitis, and here, also, the pilocarpin was successfully employed.

In these acute cases of uræmia he would hardly know how to get along without this valuable agent. To help the patient over the immediate danger of such attacks he was not acquainted with any agent so efficient. Of course, it should be employed only in properly selected cases, and in very weak subjects he could readily see how it might do harm. When the patient was fairly well nourished, however, it was invaluable in the uræmia of acute nephritis and the exacerbations of subacute nephritis, and he had never seen any ill effects result from it.

DR. A. L. LOOMIS believed that it was Dr. Delafield's intention to exclude the consideration of chronic Bright's disease from the present discussion, limiting it entirely to acute and subacute nephritis. When a physician was called to a case of acute or subacute nephritis, it was of the greatest importance that he should inquire—*first*, what the condition of the patient was at the time the attack came on; *second*, his age; *third*, his predispositions; and, *fourth*, his habits. The treatment that would be judicious and acceptable in a child, would not be judicious and acceptable in a man of fifty; just as in pneumonia, the difference in the probabilities and management of a case at twelve and a case at fifty would be very great In cases of acute nephritis rest in bed, a liquid diet, and mild purgatives were all he had required, unless there were noted disturbances indicating the retention of excrementitious products in the blood from which convulsions or other serious troubles might result. In most cases, and especially in young subjects, there was high arterial tension, and we should endeavor to relieve this tension by means of calomel and salines. If there was a drug which would relieve high arterial tension, it was calomel, in small doses and frequently repeated; and this was admirably supplemented by the free use of salines. The internal use of these agents, with the application of dry cups and stimulants to the surface, was all that was required; and vaso-motor dilators and internal stimulants were, in general, contra-indicated. In the treatment of any case the general condition and habits of the patient were, of course, to be taken into consideration, and the presence of alcoholism or other source of weakness might render certain modifications necessary.

In subacute cases the circumstances are somewhat different. Here he was entirely opposed to all forms of depletion, and consequently he did not believe that the patient should be depleted by hot-air baths or by any of those drugs which had so long been retained by the profession for this purpose. It seemed to him that dependence was to be placed rather upon hygiene and all such measures as would improve the nutrition of the patient. Iron he did not think would do this, but a change of climate was often very beneficial. As to the use of digitalis or other cardiac tonics, he thought one should be guided by a very simple rule. Whenever in subacute nephritis heart trouble is met with, we have a right to resort to some form of heart tonic; but so long as arterial tension remains such agents will only do harm. If, in any case, there was dilatation with heart-failure, and a diminution in the quantity of urine passed, ought we to use digitalis? If by the use of this drug the amount of urine was appreciably increased, he believed that we ought, and he considered that as long as it had this effect it was perfectly safe to employ it. If, however, high arterial tension was present, digitalis would always diminish the urine, and it was, therefore, clearly contra-indicated in any such case.

One point more. He did not believe that there was

any drug which would hold a heart that was weakening from the effects of poisons, such as alcoholism, uræmia, etc., in the system like opium, given in small doses and persistently used. This contributed very materially to the patient's comfort, and was also often instrumental, he believed, in prolonging life. It was to be given for its effect on the circulation.

DR. DELAFIELD, in closing the discussion, said that he had always found one difficulty about the subject in question. Whenever we commenced to talk about acute and subacute nephritis, some one was sure to get off on to chronic Bright's disease. He had not touched upon this at all in the paper, and yet Dr. Satterthwaite's remarks had been principally devoted to it. As to the use of caffeine, referred to by Dr. Jacobi, he had not recommended it himself, but had simply quoted Labadie in the *Nouveau Dictionnaire de Médecine et de Chirurgie*, as advising its administration, in connection with inhalations of oxygen gas, in uræmic coma. Bichloride of mercury was one of the old standbys in subacute nephritis, but he by no means felt satisfied as to whether it was really of service or not. In common with others, he frequently resorted to it himself; but it was never employed alone, and hence it was difficult to say just what its action was. He thought Dr. Jacobi had made a very good point in calling attention to the comparative frequency of acute and subacute nephritis. It was not by any means almost exclusively confined to scarlatina, as many practitioners seemed to think, but was met with in connection with many of the other acute fevers, and not infrequently occurred as an idiopathic affection also. Many young laborers went about their work while affected with acute or subacute nephritis, not considering themselves sufficiently ill to take to their beds; and thus very serious injury was liable to result.

As regards the matter of arterial tension, he thought it was necessary to draw a sharp line between cases of acute and subacute nephritis. When the affection was acute there could be no question that the quickest way to reduce the tension was by the use of small doses of calomel or sulphate of magnesia, frequently repeated. This relief he believed to be due to the effect of the drug on the nephritis itself. Otherwise, it was not easy to see how such agents acted, since, in order to secure the best results, their use should be suspended as soon as a distinct purgative action was produced. In order to relieve the arterial tension, the calomel, or sulphate of magnesia, should be given every hour, just as in peritonitis. This effect having been obtained, it could be held better by aconite, in minute doses, than any other agent with which he was acquainted.

The moment that we had to deal with subacute nephritis, the conditions were found to be altogether different, and no good results are to be any longer anticipated from the use of the agents mentioned. Here we employed the class of drugs that dilate the vessels, and nitroglycerine and chloral hydrate were both efficient in this connection. The use of digitalis did not apply to acute nephritis at all, and in subacute nephritis the indications for its employment had been very clearly pointed out by Dr. Loomis.

In regard to Dr. Winters' remarks, there were two points upon which he felt compelled to take issue with him. The first was, that the quantity of albumin in the urine is the measure of the nephritis present and the general condition of the patient. The amount of urine was only one of many indications to be taken into consideration, and he doubted if it were wise to make this a kind of bugbear. The circumstances were comparable to those in pleurisy, where the amount of the effusion was not to be regarded so much as the violence of the febrile action and the general condition of the patient. The second point upon which he differed from Dr. Winters, was as to the feeding of the patient. He thought it wise to give food without any reference whatever to the amount of albumin in the urine. The kind of feeding should be governed simply by the acuteness of the attack, and when the acute stage was passed, he believed that solids should be freely allowed, except at such times when acute exacerbations occurred. As to the use of iron, he thought that in subacute cases we could sometimes accomplish much with it; and even in cases where it was apparently without effect, we often did not realize how much good it really did, because we did not examine the blood.

A NEW BUILDING FOR THE ACADEMY.

THE PRESIDENT announced that the Academy had secured the refusal of three lots on Forty-third Street, west of Fifth Avenue, for building purposes, the price of which was $90,000, and that a further subscription of from $20,000 to $25,000 was necessary, in order that the project for the new building should be carried out.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, February 22, 1889.

THE PRESIDENT, WILLIAM GARDNER, M.D., IN THE CHAIR.

DR. SHEPHERD exhibited the following specimens of anomalous arteries:

(1) ABNORMAL LINGUAL ARTERY.

This specimen was obtained from a male subject used in the operative surgery class. The artery of the left side was cut down upon in the usual way, but it could not be found; on further dissection of the neck it was seen to come off in common with the superior thyroid opposite the upper border of the thyroid cartilage, from here it passed upward and inward upon the sterno-hyoid muscle to the hyoid bone; it crossed the hyoid bone internal to the lesser cornu, and then pierced the hyoglossus muscle; the rest of its course was normal. Dr. Shepherd stated that the relation of the lingual artery to the great cornu of the hyoid bone was very constant, even if its origin from the carotid was above or below that point; hence the great cornu is usually the guide to the finding of the artery. In this case no part of the great cornu was in relation with the artery. The anomaly, no doubt, originated from the enlargement of the hyoid branches of the superior thyroid and lingual arteries, and a consequent disappearance of the main trunk; a familiar example of this enlargement of anastomotic branches is seen when the obturator comes off from the epigastric artery.

(2) ABNORMAL INFERIOR THYROID ARTERIES,

both coming off from the right side.

Dr. Shepherd said that this specimen showed a rare and hitherto undescribed anamoly. Neither of the in-

ferior thyroid arteries arose from the subclavian. The *right* took its origin from the common carotid artery about an inch from its commencement. The left came off from the innominate artery, crossed over the trachea, and supplied the left lobe of the thyroid. On its coming across the trachea it gave off a small middle thyroid artery.

(3) THYROIDEA IMA AND DOUBLE SUPERIOR THYROID ARTERY.

The thyroidea ima in this case was of large size and divided into four large trunks which completely covered the front of the trachea; it arose from the innominate. Two superior thyroids existed on the left side, the upper of which was of small size.

OÖPHORECTOMY.

DR. ARMSTRONG presented the ovaries and tubes removed from a patient aged twenty-three years. The patient had suffered from the usual symptoms observed in such cases. On opening the abdomen the left ovary was found fixed and displaced, the tubes adherent, dilated, and filled with cheesy matter. There was no tuberculous history; patient had had one child.

DR. ALLOWAY said that the condition resembled that described by Mundé, as pachy-salpingitis. The affection, no doubt, commenced as a pyosalpingitis, and the cheesy matter was inspissated pus.

DR. GARDNER believed that many of these cases were due to prolonged treatment by pessaries for the correction of some displacement of the uterus.

DR. ARMSTRONG stated that this patient had been treated by pessaries for some uterine displacement before coming to him; he said that women with diseased ovaries and tubes were never safe until they were removed, and related a case of ruptured Fallopian tube leading to a purulent peritonitis. The abdomen was opened and drained, but the patient died. The rupture occurred whilst the patient was convalescing from her second confinement.

DR. BELL presented a

TUMOR CONNECTED WITH THE THYROID

which he had removed from a young man, aged twenty-five. When he entered the hospital both lateral lobes of the thyroid were much enlarged, and over the crico-thyroid space, cricoid cartilage, and upper rings of the trachea was a tumor the size of a small orange. The patient was a farmer, and was incapable of pursuing his occupation owing to the severe dyspnœa occasioned by the least exertion. After remaining in bed in hospital for some weeks, there was a marked diminution, not only in the size of the tumor, but of the whole thyroid, and his breathing became much less obstructed. The tumor was easily removed and shelled out from its bed without trouble; it apparently was unconnected with the thyroid, though on microscopic examination it gave distinct evidence of thyroid structure.

DR. BELL also presented large masses of thickened synovial membrane and thickened fringes, removed from a case of

HYDROPS ARTICULI

affecting the knee. The patient gave a history of repeated attacks of gonorrhœa. The knee was first affected six years ago, and had been getting gradually worse till from its size and the great pain on movement it prevented his working. He had suffered at times from inflammation of other joints, such as the ankles, etc. Patient had a well-marked tuberculous family history. An incision was made in each side of the patella, and a large amount of fluid evacuated. The thickened synovial membrane and the large masses of fringes looking like bunches of grapes, were dissected away. The patient was doing well. Dr. Lafleur, who examined the removed tissue, stated that it gave distinct evidence of tubercle. There were abundant granulation-cells with giant cells.

DR. SHEPHERD said that, notwithstanding the results of the microscopic examination, he doubted the tuberculous origin of the affection, and looked upon it as a simple case of hydrops with enormously thickened synovial membrane. The patient had suffered from this affection for six years, and yet the cartilage and bone were not invaded. In his experience he had never seen a tuberculous joint act in this way.

DR. RODDICK agreed with the last speaker, and was not inclined to regard this as a case of tuberculous disease of the knee-joint. The patient had suffered from repeated attacks of gonorrhœa, and at times other joints were also affected. It appeared to him that the case was one of hydrops. The length of time the affection had lasted without invading other structures was against the disease being of tubercular origin.

DR. BELL, in reply, said that he regarded the case as one of tuberculosis invading an already injured joint; he did not believe it was tuberculous in the first instance.

DR. BELL also presented a case of

DRY GANGRENE OF HAND

in which he had performed amputation of the arm. The patient some months ago had an inflammatory attack of the hand which resulted in contraction of the thumb, fore and middle fingers of the right hand. In a few weeks these fingers became dark in color and shrivelled up. When seen by Dr. Bell he had well-marked dry gangrene of the thumb, index, and middle finger—in examining the brachial, no pulsation could be felt below the elbow. Amputation of the arm was performed and an examination of the removed limb showed that the gangrene was due to a thrombosis of the brachial artery at its lower part. The cause of the thrombosis could not be made out; there was no marked atheroma of the vessels; the man had received an injury of the arm whilst intoxicated which might account for the thrombosis.

DR. GEORGE ROSS read a paper on

GASTRIC AND DUODENAL ULCER.

The first case related was one of ulcer of the stomach of long standing. The patient—a woman of fifty-two years of age—had suffered for about ten years from pain after food, sometimes of a very severe character, and frequent vomitings; had been rather pale and not strong for a few years, but had still been able, with effort, to accomplish the work of her household. Her strength finally gave out and she kept her bed. Some months ago she noticed a lump in the epigastrium and observed frequently snake-like movements in that part of her belly; so distinct were these that she became firmly convinced that a live lizard was in her stomach. The tumor was found to be firm, nodulated, movable, hardly tender, and influenced very much by the vermicular movements, which occurred

at irregular, but short, intervals. At the time of the contraction, the stomach was very distinctly felt, rising hard and rounded beneath the band and obscuring the tumor; after a few seconds, it quietly became more flaccid and the tumor more perceptible. The contractions caused pain. The stomach was not at all dilated—in fact, rather the contrary. At the patient's urgent solicitation, laparotomy was performed by Dr. Bell though it was much doubted if anything effectual could be accomplished.

The stomach was found of small size and a firm mass occupied the greater part of the lesser curvature of the organ, encroaching in the posterior wall. It was decided that it could not be removed. She was none the worse for the operation and much relieved mentally; three months later she was still living but in a very weak state. It was stated that some of the consultants considered the case one of malignant disease engrafted upon an old ulcer.

Dr. Ross did not hold this view. He thought the tumor a non-malignant fibroid thickening around the base of a large, very chronic ulcer, and considered that the details of the case bore out this opinion. He said he had often seen tumor of the stomach of this kind reach a considerable size, most frequently near the pylorus. He admitted the fact that malignant disease did sometimes develop in cicatricial tissue, but as to gastric ulcer, though the process is spoken of in this connection, yet it would seem that the facts upon which this statement is based are rather meagre. Extreme rapidity of development and coincident marked emaciation and cachexia must be demonstrated to make clear the existence of malignant disease. The diagnosis might have an important hearing upon the question of operation. The course of the marked peristaltic movements seemed obscure. Dr. Ross had often seen these in connection with pyloric obstruction, but here there was no mechanical narrowing of the outlet.

A second case was reported as a contrast to the former, in which the rapid development of painful gastric symptoms with equally rapid failure of flesh and strength in an elderly man, led to a diagnosis of cancer. A small, tender lump lay immediately under the ensiform cartilage and projected downward with the contractions of the diaphragm. This was believed to be in the liver. The autopsy revealed a contracted stomach with thick walls infiltrated with the malignant growth. No tumor. The lump referred to was a secondary nodule in the left lobe of the liver.

The third case was believed to be one of duodenal ulcer. The patient was a large-framed, young farmer, aged twenty-three. Had suffered from dyspepsia and pain on the left side for six years; soon after had an attack of melæna, passing large quantities of blood, fainted twice, and stayed in bed two months. Dyspeptic symptoms had persisted ever since, with weakness. In November last had a repetition of the intestinal bleeding, and when seen here soon afterward was blanched and feeble. It was thought that all other possible causes of hemorrhage could be excluded, and the diagnosis was discussed with the result that the existence of a duodenal ulcer seemed certain. The situation of the pain was remarkable, being under the *left* hypochondriac region. Examination of the stomach proved it to be in a state of moderate dilatation, succussion sounds being very loud. He vomited occasionally, and sarcinæ ventriculi were present. The explanation of this was, that a partial stenosis of the duodenum existed and acted in the same way as a narrowing of the pyloric opening. The condition is mentioned as one of the rare sequels of duodenal ulceration.

CORRESPONDENCE.

HYPERTROPHY OF THE LINGUAL TONSIL.

To the Editor of THE MEDICAL NEWS,

SIR: The following case of hypertrophy of the lingual tonsil may be of interest on account of its unusual size. Mrs. F., æt. about forty, applied to me for relief from an unpleasant sensation of some obstruction or feeling of stiffness in her throat. She complained of no pain at all but said she had been treated for several months, two or three years ago, for the same sensations, by means of sprays, etc., without deriving any decided benefit. On examination with the laryngoscopic mirror I found two masses of cellular tissue situated just over the line of the papillæ circumvallatæ and extending from the base of the tongue behind the epiglottis almost to the top of the arch of the tongue. Each tumor appeared to be about the size of the first phalanx of the index finger and between them there was a deep channel. There was very little appearance of inflammation or varicosity. I removed one tumor entire with Mackenzie's tonsillotome, and a portion of the other. The patient has since expressed herself as being much more comfortable.

Very truly yours,

W. PEYRE PORCHER, M.D.

4 GEORGE ST., CHARLESTON, S.C.,
Feb. 25, 1889.

CASE OF SUPERNUMERARY DIGITS.

To the Editor of THE MEDICAL NEWS,

SIR: The following case is reported in the hope that it may give some assistance in clearing up the question raised by Dr. T. Wesley Mills, in *The Canada Medical and Surgical Journal* for May, 1887. Prof. Mills there states that, according to Prof. Brooks, variations originate with the male, but himself gives a case which is, at least, an exception to the rule, and, as he says, is much against the theory. It is true that this is a single case, and that the history further back than the grandparents cannot be obtained, but it is given for what it is worth.

On the 15th of February, 1889, I was requested by a man to go to see his baby, a girl, aged two weeks. He stated that when the child was born it had a little tag of flesh on each hand. The mother had been advised to remove them by tying a silk thread tightly around each one. This was done, with the result that one hand was becoming very sore, and the child appeared quite ill.

When I saw the child I found that from the outer side of each little finger, opposite the articulation of the first and second phalanges, there grew a supplementary finger. That on the right hand was still tightly bound by the ligature, and was much discolored; the little finger of that hand was also somewhat inflamed. On the left hand the silk had become loosened and the appendage presented a natural appearance. It increased three-eighths of an inch in length by a quarter of an inch in breadth, and at the distal extremity was furnished with a diminutive nail. It was attached to the left little finger by a pedicle about a quarter of an inch in length, and

was freely movable. Both appendages were removed without any trouble.

In this case there is no history of maternal impression, and the parents are positive that, as far as they themselves and their parents are concerned, there has been no other case of supernumerary digits in either family. Further than their own parents they cannot go. This would, therefore, appear to be a case in which the variation originated with the female.

W. A. DE WOLF SMITH.
NEW WESTMINSTER, BRITISH COLUMBIA.

NEWS ITEMS.

Colds and Clothing.—The teaching of modern science and of ancient custom goes to show that heat-production within the body has much to do with the tissue-changes concerned in muscular activity and with healthy digestion. It is conserved by warm and moderate, wasted in evaporation by excessive, clothing. Finally, by a simple nervous reaction, it is increased after the contact of external cold. It follows from these observations that, if we be so clad with comfortable underclothing that surface perspiration is not formed in excess and is rapidly removed, one great cause of chill—sudden evaporation—is done away with.

Outer cold, then, provided it is not too severe, only touches, as it were, the spring of the heat-making metabolism, and, exciting an elastic rebound in the chain of vasomotor fibres, awakens that oxidative action by which every tissue is made to yield its share of heat to the body. This bracing influence is lost wholly or partly to those who are too heavily clothed, and in its place we may have a dangerous excess of surface-heat. It is for this reason that we have before protested, as we now do, against the indiscriminate use of the thick and heavy overcoat. We would rather see men in fairly robust condition, especially if young, clad warmly next the skin, and wearing either a light top-coat or none at all.

There can be no doubt that the habitual use of great coats is indirectly accountable for the chills which they are intended to prevent. Were the overcoat worn continuously, it might attain its object. Its intermittent use, even when ample underclothing is worn, affords no solid guarantee of safety, but rather the reverse. The man of sedentary habits has especial need to remember this. He emerges daily from a warm breakfast-room clothed in his ordinary winter garments, with probably woollen underwear, and over all the heavy ulster or topcoat. After a short walk he finds that the sense of warmth he began with is more than maintained. He arrives at his office or place of business, and off goes the overcoat, though the air of the newly opened room is as cold as that without, and draughty in addition. During the day perhaps he travels to and from adjacent business houses wearing only his house clothing. The overcoat is laid aside till closing time reminds him of the journey home. The frequent result is that somehow between the hours of his departure and return he is chilled. No doubt he would run as great a risk, if lightly clad, he were to face the rigor of a winter day. In this case, however, exercise and habit might do much to develop the power of endurance, and there would, at all events, be less danger of sudden cold acting upon a freely perspiring surface.

Woollen underclothing represents a state of healthy comfort intermediate between these extremes, and more resistant to chill than either. In commending its use, however, we do not assert that the influence of age and constitution is to be overlooked. Youth can oppose a power of resistance to depressing agencies which does not reside in the worn-out nerve centres of a riper age. Similarly, that elastic reaction which characterizes the nervous and sanguine types is not to be looked for in the lax tissues of the lymphatic. The weaker physique naturally calls for fuller protection than the stronger; and any rule requiring the disuse of the overcoat should allow of reasonable exceptions in favor of the old and constitutionally feeble.

Unusual severity of weather, especially if associated with night air and the loss of sleep which this implies, is another condition which might well constitute an exception. In such a case we are compelled to add some form of overcoat to the ordinary amount of clothing. Some parts of the body—for example, the chest, throat, and feet—are certainly more susceptible to cold than others. As a useful safeguard, cold or tepid bathing of such parts is in merited favor. The custom so common with many persons, especially women, of walking out in thin-soled boots often plays an important part in catching cold. The progress of time and of rational thought may be expected to bring in a more comfortable arrangement by clothing the foot in woollen hosiery and a stouter boot.—*Lancet*, Jan. 26, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 5 TO MARCH 11, 1889.

WEBSTER, WARREN, *Major and Surgeon* (U. S. Army).—Retired from active service, February 28, 1889.—Par. 9, *S. O. 50, A. G. O.*, March 1, 1889.

GREENLEAF, CHARLES R., *Major and Surgeon* (U. S. Army).—Is appointed a member of the Board to meet in this city on March 11, 1889, for the purpose of revising the blank forms now in use in the Army, and preparing the "Book of Forms" for issue.—Par. 13, *S. O. 55, A. G. O., Washington, D. C.*, March 8, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MARCH 9, 1889.

MARSTELLER, E. H., *Passed Assistant Surgeon.*—Detached from the monitors at Richmond, and wait orders.

CABELL, A. G., *Passed Assistant Surgeon.*—Detached from the Naval Hospital, Chelsea, Massachusetts, and ordered to the monitors at Richmond.

MCCLURG, WALTER A., *Passed Assistant Surgeon.*—Promoted to the rank of surgeon.

BABIN, H. J., *Surgeon.*—Detached from the "Mohican," proceed home, and wait orders.

BRADLEY, GEORGE P., *Surgeon.*—Ordered to the "Mohican."

LUNG, GEORGE A., *Assistant Surgeon.*—Detached from the "Vermont," and ordered to the "Mohican."

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ACUTE PANCREATITIS.

A Consideration of Pancreatic Hemorrhage, Hemorrhagic, Suppurative, and Gangrenous Pancreatitis, and of Disseminated Fat-necrosis.

The Middleton-Goldsmith Lecture for 1889, delivered before the New York Pathological Society, Feb. 16, 1889.

BY REGINALD H FITZ, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY IN HARVARD UNIVERSITY AND PHYSICIAN TO THE MASSACHUSETTS GENERAL HOSPITAL.

(Concluded from page 286.)

DISSEMINATED FAT-NECROSIS.

CONSIDERABLE prominence has necessarily been given to the necrosis of fat-tissue associated with pancreatic inflammations.

Hooper[1] probably intended to describe the appearances due to this condition; but Ponfick[2] first distinctly recognized the condition. He called attention to a disseminated necrosis of bone-marrow in a case of empyema and extensive amyloid degeneration. The appearance was that of innumerable, submiliary, yellowish-white specks in the amber-colored marrow. They proved to be composed of an agglomeration of large cells crowded with fine granules. These were enormous, granular corpuscles, which from their size and shape were regarded as identical with fat-cells. There were also narrow and elongated, fatty-degenerated cells, so disintegrated in many places as to form a finely granular detritus. Ponfick attributed these spots of necrosis to a fatty degeneration of the marrow.

Balser,[3] who became an assistant of Ponfick, then professor at Göttingen, found similar appearances in the marrow and in the subpericardial fat, each in an old man. In the examination of twenty-five unselected cases he found such patches in the region of the pancreas in five instances. Two of these patients died of cancer of the stomach, and the remaining three were cases of pulmonary consumption, hepatic cirrhosis, and aortic endocarditis respectively. There remain two additional cases in which he found fat-necrosis.[4]

These he regarded as illustrative of the fatal effect of a disease, fat-necrosis, which, when extensive, was associated with old and fresh hemorrhage. Such hemorrhages near the pancreas might produce death in a manner resembling that described by Zenker as pancreatic apoplexy.

He regarded the fat-necrosis as the result of an excessive growth of fat-tissue which destroyed the tissue it surrounded. From its association it was a special source of danger to fat persons. His conclusion is:[5] "an excessive growth of the fat cells near the pancreas occurs in many men. It may become so excessive, in very fat people, that a large part of the abdominal fat dies, and it thus proves fatal, either on account of the quantity destroyed or the associated hemorrhage.

Chiari[1] had also found fat-necrosis associated with pancreatic disease,[2] although in his published report he made no note of the characteristic appearances. He confirmed Balser's statements concerning the occurrence of fat-necrosis in and near the pancreas. Since he had observed it in five out of six cases of pancreatic disease, a certain connection between the two was suggested. Three of these were cases of sequestration of the pancreas. The remaining three were a phthisical diabetic, a case of chronic Bright's disease and interstitial pneumonia, and an infant with congenital syphilis.

He found no evidence of an excessive circumscribed growth of fat-tissue, as claimed by Balser, but regarded the necrosis as a degenerative process analogous to the retrograde metamorphosis in other tissues, and the result of a severe marasmus. He admitted it as a cause of pancreatic hemorrhage and that it might, hence, prove fatal. He did not regard the sequestration of the pancreas as the result of this necrosis, since he could not understand how extensive circumscribed necrosis about the pancreas could isolate so large an organ.

Finally, Van Giesen[3] presented to the New York Pathological Society microscopical sections illustrative of fat-necrosis. They came from the pancreas of a woman eighty years of age. There were two nodules, the larger five mm. in diameter. Nothing is stated with reference to any associated lesions, and the necroses were regarded as degenerative.

There is a general agreement as to the appearance of these nodules. They are multiple, disseminated, are found in the subperitoneal fat-tissue of the abdominal wall, mesentery, omentum, and in that within and around the pancreas. Chiari[4] found them also in the subpericardial, subpleural, and subcutaneous fat. Their presence in marrow has already been mentioned.

Such nodules were present in one case of pancreatic hemorrhage, certainly in one, probably in two, cases of acute suppurative pancreatitis. They were seen in six cases of hemorrhagic and in six of gangrenous pancreatitis.

These nodules, in most of the cases, occurred in great numbers, the smallest not larger than a pin-head, and strongly suggestive of miliary tubercles or malignant new formations. The largest were of the size of a hen's egg All were more or less rounded, of an opaque white or yellowish-white color, and of soft, tallowy consistency. They occurred alone or in groups, superficially and deep seated. The smallest were often surrounded by an injected vascular wreath, while many were bounded by

[1] Case XIX. [2] Virchow's Arch., 1872, lvi. 541.
[3] Loc. cit. [4] Nos. XXIV., LXVII. [5] Loc. cit., 534.

[1] Prager med. Woch., 1883, viii. 285. [2] Cases LVIII., LX.
[3] N. Y. Med. Rec., 1888, xxxiii. 477. [4] Loc. cit., 285.

a distinct, narrow, reddish-brown zone, indicative of hemorrhage.

Chiari[1] found the larger nodules (although he does not state in which of his six cases) incrusted with lime, and surrounded by a distinct fibrous capsule, from which threads occasionally ran into the surrounding fat-tissue.

The tallowy material could be readily picked out of these nodules, and, when examined microscopically, consisted largely of acicular crystals resembling those found in fat, in addition to fat-drops and a granular detritus. Dr. Harrington's micro-chemical examination of these crystals shows their identity with those obtained from tallow. He regards them as stearine. In this view he confirms the conclusion reached by Balser.[2]

The microscopical appearances have already been described in sufficient detail.

Balser states[3] that his examination shows that the same process is concerned in the mild and fatal cases. Neither he nor Chiari was able to find any evidence of a bacterial or mycotic process, nor was the latter able to discover any changes in the neighboring vessels.

The microscopical appearances found in Case LXVII. make evident certain features in the more serious fat-necrosis, which supplement the results described by other observers.

Tracts of round-celled infiltration were found at the border of the patches. Chiari also states that the fibrous threads continued from the capsules were infiltrated with round-cells.

The surrounding fat-tissue gave frequent evidence of an acute lymphangitis, of abscesses, and of thrombosis.

Bacteria were found in and near the patches of necrosis. They were likewise present in a neighboring vessel and in a venous thrombus.

The association of these appearances with the evidences of fat-necrosis indicate most directly that the latter condition, in fatal cases at least, instead of being simply the result of a hyperplasia or of a degeneration, is connected with an acute, inflammatory process, somewhat akin to the phlegmonous inflammation of the subcutaneous fat.

The cause of its dissemination would thus, probably, depend upon the transfer of an infecting material, either through vascular currents, especially lymphatics, or by direct inoculation of the peritoneum in case of the superficial nodules. The multiple, disseminated fat-necrosis found associated with fatal pancreatic disease is thus to be regarded as the result of the inflammation of the fat-tissue extended from the pancreas or its vicinity. The pancreas is usually the seat of the primary process, but the necrotic inflammation of the fat-tissue may be secondary to a possible primary lesion of the biliary tract or stomach, as suggested by Cases LVII. and LVIII.

The spots of dead fat-tissue, observed in the marantic cases may be degenerative, as claimed by Ponfick and Chiari. They certainly are neither necessarily nor exclusively found in fat persons. There is no confirmatory evidence of their hyperplastic nature.

The inflammatory fat-necroses, in most cases, were associated with evidences of putrefactive conditions.

It would thus appear that there is a necrobiotic necrosis of the fat-tissue, and an inflammatory necrosis, the latter tending to become gangrenous, both of which may be found within or near the pancreas. The inflammatory and gangrenous varieties are of especial importance in permitting the sloughing of the pancreas, and in most instances are the result of an acute inflammation of this gland.

Although the serious varieties of fat-necrosis may be recognized as causes for sequestration of the pancreas, their relation to pancreatic hemorrhage must be expressed in different terms from those employed by Balser and Chiari.

A simple, necrobiotic fat-necrosis may be associated with fatal pancreatic hemorrhage, as suggested by Case V., but there is no necessary etiological significance in this association. Most fatal cases of pancreatic hemorrhage occur without either variety, and the simple necrosis usually takes place without hemorrhage.

When the severe varieties of fat-necrosis accompany pancreatic hemorrhage, inflammation of the pancreas is present. The fat-necrosis cannot be regarded as the essential cause of the hemorrhage in such cases, since it occurs in suppurative pancreatitis when there is no hemorrhage in the pancreas.

Furthermore, when hemorrhages are found near the necrotic patches they are usually very slight and limited to the immediate vicinity of the patch.

CONCLUSIONS.

The evidence presented in this paper is intended to establish the fact that—

Acute inflammation of the pancreas is both a well-characterized disease, and one which is much more frequent than is generally thought.

It is of great consequence that it should be recognized, for the following reasons:

It represents a serious complication of what, by itself, is a relatively simple affection, viz., gastro-duodenitis.

It is an important cause of peritonitis, and one readily overlooked.

It has been repeatedly confounded with acute intestinal obstruction, and has thus led, in several instances, to an ineffective laparotomy; an operation which, in the early stage of this disease, is extremely hazardous.

METHOD OF ORIGIN.

Acute pancreatitis commonly originates by the extension of a gastro-duodenal inflammation along the pancreatic duct. It may also be induced by the occurrence of hemorrhage in the pancreas. This may be of traumatic origin, although usually arising from unknown causes. The pancreatic hemorrhage may likewise be secondary to inflammation of the pancreas.

PATHOLOGICAL ANATOMY.

The anatomical varieties are the suppurative, hemorrhagic, and gangrenous. The first may be acute, but is usually subacute or chronic. The second is generally peracute or apoplectiform. The gangrenous variety runs an acute course.

Suppurative pancreatitis may result in an evacuation of the abscess into the stomach or duodenum, or it may open into the cavity of the great omentum, which, transformed into a large peritoneal abscess, may, in turn, open into the digestive tract. Pylephlebitis and abscesses of the liver may follow. Disseminated fat-necrosis is comparatively infrequent.

[1] Loc. cit., 299. [2] Loc. cit., 528. [3] Loc. cit., 522.

Hemorrhagic pancreatitis usually proves fatal in from two to four days. The gross lesions are then those of hemorrhage within and near the pancreas, extending into the subperitoneal fat-tissue, perhaps as far as the pelvis. Peripancreatitis may be expected and disseminated fat-necrosis is common.

Gangrenous pancreatitis, although it may be secondary to a perforating inflammation of the gastro-intestinal or biliary tracts, usually results from a hemorrhagic pancreatitis, and proves fatal in the course of a few weeks. The gangrenous processes extend to the parapancreatic tissue, and produce more or less complete sequestration of the pancreas. The peritoneal wall of the omental cavity becomes inflamed, that covering the pancreas may be destroyed, and the sequestrated gland may lie in the omental cavity, soaked in pus, and attached only by a few shreds. Both pus and pancreas may be discharged into the intestine. Splenic thrombophlebitis is not uncommon, but hepatic abscesses are rare. Disseminated fat-necrosis is frequent.

SYMPTOMS.

The common symptoms of acute pancreatitis are sudden, severe, often intense, epigastric pain, without obvious cause, in most cases followed by nausea, vomiting, sensitiveness, and tympanitic swelling of the epigastrium. There is often extreme prostration, frequent collapse, low fever, and a feeble pulse. Obstinate constipation for several days is the rule, but diarrhœa sometimes occurs. If the case does not end fatally in the course of a few days, recovery is possible, or a recurrence of the symptoms in a milder form takes place, and the characteristics of a subacute peritonitis are developed.

DIAGNOSIS.

The symptoms are essentially those of a peritonitis, beginning in the epigastrium and occurring suddenly, during ordinary health, without obvious cause. The diagnosis, therefore, is based on pain, tenderness, and tympany, limited to the region of the pancreas, and on the gradual development of a deep-seated peritonitis in the same place.

DIFFERENTIAL DIAGNOSIS.

The differential diagnosis lies, practically, between an irritant poison, perforation of the digestive or biliary tract, and acute intestinal obstruction.

An irritant poison is excluded by the history of the case and by the examination of the vomit.

Perforating ulcer of the stomach or duodenum is to be excluded by the absence of pain after eating, hemorrhage from the digestive canal, and cachexia. Acute perforation of the transverse colon is rare, and the resulting peritonitis progresses more rapidly and is likely to be general. Perforation from gall-stones is usually preceded by attacks of biliary colic and jaundice, while the seat of the pain is rather in the region of the gall-bladder than in that of the pancreas.

Acute intestinal obstruction is most likely to give rise to doubt. It is to be eliminated by determining, through injection, the patency and capacity of the large intestine; by the rarity, in the epigastrium, of an obstructed small intestine; by the immediate presence of localized tenderness, and by the usual absence of conspicuous general tympany, or limited distention of intestinal coils.

TREATMENT.

It is evident that all treatment, at the outset, can be nothing but palliative. With the formation of pus in the omental cavity comes the opportunity for the surgeon. The possibility of the successful removal of the gangrenous pancreas is suggested by the healthy condition of a patient seventeen years after he had discharged this organ from his bowels.

An unexpectedly early verification of the above conclusions has occurred within the week following the delivery of this lecture.

The case was that of a well-known gentleman of Boston, and presented so fully the symptoms above mentioned, that, when called as consultant, I was able to make a diagnosis of acute pancreatitis, which was eventually substantiated.

The following is a brief summary of the essential features of this case, which will, hereafter, be more fully reported:

The patient was suddenly seized, February 19th, while apparently in his usual good health, with a severe pain and tenderness a short distance above and to the left of the navel. This was followed by vomiting and a certain degree of prostration. The administration of nearly a grain of morphia gave relief. I saw him in the evening, and during the subsequent two days of his life. He died on the third day. The localized pain was more or less constant, with occasional severe twinges, and was also to be elicited by intercostal pressure in the splenic region. The sensation of a constricting band in the epigastric region was likewise mentioned. At the close of the second day the lower abdomen became sensitive in spots. There was vomiting on the first day, but not later, and the bowels were confined. The abdomen was somewhat distended and dull, except in the epigastrium. The pulse was moderately accelerated and the temperature slightly elevated.

The diagnosis lay between acute, mechanical intestinal obstruction, perforative peritonitis, and acute pancreatitis. The majority of the consultants agreed to the first as the most probable condition, and advised a laparotomy, which was performed on the third day. Spots of fat-necrosis were seen in the omentum, but there was no evidence of mechanical obstruction.

At the post-mortem examination the characteristic appearances of hemorrhagic pancreatitis were found, also numerous spots of disseminated fat-necrosis.

ORIGINAL ARTICLES.

THE TREATMENT OF SPASMODIC CROUP WITH OPIUM.[1]

BY ARTHUR V. MEIGS, M.D.,
PHYSICIAN TO THE PENNSYLVANIA AND TO THE CHILDREN'S HOSPITALS.

By the term spasmodic croup I have meant to designate all forms of the disease characterized by the absence of false membrane, whether supposed to be simply spasmodic, inflammatory, or catarrhal,

[1] Read before the Philadelphia County Medical Society, February 27, 1889.

and my desire is to raise the question of what constitutes proper treatment, for the subject is one upon which my own views are very definite. Though the disease only in the rarest instances endangers life, and from that standpoint is not of much consequence, yet it is so very common and causes so much suffering that by proper treatment can in most instances be so readily prevented or relieved, that it is well worthy of our careful attention and consideration. The method of treatment I have always pursued was for many years used by the late Dr. J. Forsyth Meigs, and is described in Meigs and Pepper on *The Diseases of Children.*

It may be premised, in the first place, that in all severe cases the treatment must be begun by the administration of an emetic, and for this purpose, if it be necessary to have a prompt result, nothing will be found better than a teaspoonful of powdered alum mixed with a teaspoonful of syrup of ipecac. If emesis does not occur in ten, or at the outside fifteen, minutes, the dose may be repeated; the second, however, will not often be necessary. This is much better, if it seems desirable that an immediate result be attained, than any other of the emetics—ipecac alone, sulphate of zinc, or any of the preparations containing antimony. The latter I have always looked upon as unnecessary or even dangerous on account of the severity of their effects, though I confess that my personal experience with them has been of the most limited description. I have heard older members of the profession say that in former days, when it was the custom to administer Coxe's hive syrup or antimonial wine in large doses, and to place children in a warm bath, they had frequently seen them die of the complaint, and anyone who has read the letters of Gui Patin, who lived in the reign of Louis XIV., and at a time when almost a crusade was being preached by the physicians of France against the drug on account of the manner in which it was abused, will realize how much mischief it is capable of doing when injudiciously prescribed. For my own part, I am satisfied that any results to be had by its administration in croup can be obtained better, and much more safely, by other means.

The effects of most emetics in children, it must always be remembered, are sooner over and less severe than in adults, and, therefore, their use is often proper when it would be inadvisable to give them to older people. When the question is to be answered, in any case of croup, whether or not to give an emetic, the decision is not so important, for its administration can hardly do any injury unless antimony be used. I have seen a young child, within half an hour after emesis, sit up and eat hungrily. Alum and ipecac, given as has been recommended, act with great promptness, have the most marked effect in relaxing the laryngeal spasm, and, contrary to what is very commonly said of their combined use, produce very little physical exhaustion and relaxation afterward.

When summoned to a case the first question the physician must ask himself and decide is, whether the indications are such as call for the administration of an emetic. This question must be answered by considering the matter of dyspnœa—if there be no dyspnœa emetics seem to me entirely unnecessary, nor do I give one if there be merely a hoarse voice and slightly noisy respiration without real difficulty of breathing. It is only when there is decided obstruction of respiration and retraction of the base of the chest and supra-sternal fossa that emesis is to be at once induced.

If it be decided that an emetic is unnecessary, then something else must be done. It is to be understood that I am now discussing the treatment just as I should if I had been called in in the middle or early part of the night probably, to see a child that had been seized, without previous warning, with a paroxysm of the disease. Having decided that the symptoms were not sufficiently urgent to make the administration of an emetic necessary I should order a dose of laudanum and ipecac, and at the same time give directions for a second dose if the first did not in the course of an hour produce a marked calming effect. By the judicious use of an opiate with ipecac if the case be not so severe as to demand the immediate and somewhat more violent action of an emetic, in my experience the spasm of croup can be better combated than by any other means I have ever tried, and when once a physician and judicious mother have combinedly learned to manage spasmodic croup in this way the disease, except when it occurs in its most violent forms, loses almost all its terrors in a household. Absolute perfection, of course, is not to be attained; and this holds true of our power of judgment of the precise dose of medicine to be given in any particular case of disease. But what is to be aimed at in croup is to give such an amount of laudanum as will produce a moderate but decided soporific effect without narcosis, and ipecac to relax spasm but not nauseate, and especially not to induce emesis. This end would be attained in adults ordinarily by giving about twenty drops of laudanum with fifteen of syrup of ipecac, with directions that a second dose to consist of ten to fifteen drops of laudanum with ten or fifteen of ipecac syrup be given after an hour, or later during the night if it should seem necessary. In children, of course, and it is only in children, practically speaking, that we ever meet the disease, the dose must be made less according to the age. I mention the doses which would be proper for adults merely as illustrating the therapeutic effect that it is my aim to attain, for the amounts of laudanum mentioned could with perfect propriety and safety be given to most adults.

In using this method of treatment of croup it is, of course, a great advantage both to the physician and patient, if the physician already knows from previous experience with the child, the exact quantity of laudanum and ipecac he will have to take to effect the purpose. In administering laudanum to any child that has never previously taken it, no one should ever do otherwise than begin with a minimum dose, and this too at the risk of failing to thoroughly produce an effect, because the event will prove the dose to have been too small for the particular individual. For a child two years old, the initial dose should not be more than two drops of laudanum with ten of ipecac syrup; this to be repeated after an hour, or any time later if necessary. By waiting an hour, a second dose can always, in my experience, be given with entire safety, for if the first has produced no decided effect in that length of time, the second will not produce too much. For an infant of two to six months the first dose, to keep properly within the line of safety, should be half a drop with five or six of ipecac syrup, this to be repeated in an hour if the first be insufficient. In older children the dose must be proportionally larger, and the precise amount to be given is very much a matter of individual judgment, for it is difficult to formulate a precise rule which can be held to rigidly at the moment of emergency.

It is a good plan often, when the case is a severe one, and an emetic has been judged necessary, after its action to wait half an hour, and then give one or two doses of laudanum without ipecac, to induce sleep and relax spasm. This seems often to prevent the recurrence of the attack toward morning, which is likely to take place if the emetic alone be relied upon.

The first night having thus been tided over, a moderate amount of opiate under all ordinary circumstances having been used, and an emetic given if needed, it becomes a question what is to be done next. Is the disease cured, and no further medication required, or does the condition of the child require further attention? Although in the majority of cases of spasmodic croup, by the time morning comes the child will have lost his hoarseness and fever, and will seem often as well as if nothing at all had happened, playing about cheerfully during most of the day if allowed, the disease generally, if left without treatment, returns a second, and even a third night, and the condition of the patient will often be more threatening with the return than it was at the onset. Here then certainly is an opportunity which promises much for preventive medicine, the branch of therapeutics which it is generally thought will effect the best that can ever be done by the science of medicine.

Knowing that the trouble is likely to return, the child should be kept in bed the following day, and given every two hours minute doses of paregoric and ipecac, to which nitre may be added if there be fever. The doses should be so small as to be very gently relaxing, but the amount of opiate too little to induce any sleepiness, and that of ipecac to take away appetite, much less produce any nausea. This result will be most nearly attained in children between two and five years of age by the use of from five to ten drops of paregoric, and about five of ipecac syrup. As much as ten drops of the ipecac, and it is an amount I have very commonly seen given, is sufficient, when administered every two hours, to nauseate many children, and then the remedy becomes worse than the very disease itself, for nothing is so depressing to the general strength and vitality, and natural powers of resistance to disease, as long-continued nausea.

The child having, as already recommended, been kept in bed during the day, when the second night comes laudanum and ipecac should again be given at bedtime, with directions for a second dose if it seems necessary. To say bedtime is, perhaps, not so precise as is to be desired, but the proper time for the first dose is between six and nine in the evening, when the child is tucked in bed to sleep for the night. The doses should be such as already mentioned, unless it be judged that those given the night before were too small, in which case the amount may be increased to such an extent as seems advisable, the previous night's experience having given us a guide to the child's susceptibility to the drugs. During the second day also, the child should almost always be kept in bed, and the minute doses of paregoric and ipecac continued every two hours, and the laudanum with ipecac at bedtime again administered. After the third night, unless the case be one of unusual severity, the cough will become loose, and when this is the case there is no longer any likelihood of a return of spasm. In my own experience it has seldom happened, and then only in cases of great severity, that I have found it necessary to administer an emetic after the first night, though I am sure that if cases be left without treatment, the spasmodic symptoms are apt to be more violent the second or third nights than they were the first. Knowing that the trouble is likely to return, and having learned something of the individual child's susceptibility to opium and ipecac, it is much easier to prescribe, both with safety and confidence in ourselves, such a dose as will prevent the return of violent spasm, and this, it should be thoroughly understood, does not require the administration of any large dose of laudanum. As already stated, the effort should be to give such a dose as will produce an effect parallel to that of twenty drops of laudanum upon an average adult,

and it is always both safer and better to err upon the side of giving too little than too much. One difficulty that very commonly has to be met, is that on the day following an attack, if the child be at all feverish, the appetite will generally be very poor, or abolished, and this will naturally be attributed by anxious mothers to the medicine that was given; but if it be explained that it is due to the cold and the accompanying fever, there will usually be no trouble in having the treatment continued.

The treatment of the disease after the spasmodic symptoms have passed off it is not necessary for me here to discuss, for it must be that of coryza, or bronchitis, or both, according as the inflammatory process which had its origin in the larynx travels upward or downward, or in both directions, for it is sufficiently well known that an attack of spasmodic croup is almost always followed by, or perhaps more properly is, the first symptom of a cold of some sort.

It will not be amiss for me now to give a few quotations to show that I am not alone in the opinion expressed in regard both to the great value of opium in children's diseases and its entire safety when properly used.

In Meigs and Pepper on *The Diseases of Children*, as I have already said, opium is highly recommended as most valuable in cases of spasmodic laryngitis.

The following quotation is taken from West on *The Diseases of Children*, page 31:

"A third great remedy in the diseases of early life is *opium* in its various preparations; and with it may be classed, though separated by a wide interval, other sedatives. . . . . Perhaps no remedies are so often needed in the diseases of early life as sedatives, for at no other age is the nervous system so easily disturbed. At the same time, the susceptibility to the action of narcotics and sedatives is so remarkable, and the evils which result from their unnecessary employment, or from their administration in excessive doses, are so serious, that some practitioners altogether abstain from their use. To do so, however, is to deprive ourselves of one of the most important classes of remedies, and of one for which no substitute can be devised."

Goodhart, on *The Diseases of Children* (edited by Starr), page 25, expresses the view that the dangers of the administration of opium to children are overestimated, but says that the initial dose should always be a small one.

Eustace Smith, in his book on *Disease in Children*, page 19, says:

"Opium, it is well known, should be given with caution. The remedy is, however, of extreme value, and if care be taken to begin with only a small quantity, and to postpone a second dose until the effect of the first has been ascertained, no ill effects can possibly be produced by the narcotic."

Again, in his *Clinical Studies of Disease in Children*, the same author, in speaking of the use of the drug, at page 18, says:

"It is, however, a medicine which is of especial value in the treatment of the diseases of infancy, and may be given without fear if care be taken not to repeat the dose too frequently."

Having now described the method of treatment which in my hands has proved so efficacious, and up to the present time so free from danger, and by the above quotations having shown that some of the most highly considered and widely quoted authorities are of the same opinion in regard to the use of opium that I have myself expressed, I have only two things to add:

First, my opinion that an unusual susceptibility to the influence of the drug in children is not common, no more so than it is in adults, among whom, when it exists, it is called an idiosyncrasy, so rare is it. The reason that the use of the drug has had a bad name among physicians is because the initial dose given has so often been too great and not because the idiosyncrasy is common. The truth of this statement is borne out by the fact that so many of the authorities upon questions of diseases of children, and presumably the acknowledged authorities, are those who have had the largest experience and are, therefore, best qualified to judge, recommend the administration of opium as both valuable and safe. Most important of all, perhaps, for us to remember in coming to a decision whether or not we shall deny ourselves the use of the drug in treating the diseases of childhood, is the fact that even in those rare instances in which the idiosyncrasy does exist it is almost impossible, if the initial dose given be a sufficiently small one, that it should cause death. The usual result is that the child is slightly narcotized—made to sleep somewhat heavily—and the parents and physician are frightened lest worse should come of it. Shall we on this account deny our patients the many advantages to be derived from the administration of a drug the use of which will only be dangerous owing to our own lack of care?

Finally, it is quite incomprehensible to me why the use of opium should be decried when children, even the youngest, are freely given many other drugs which are confessedly much more dangerous, and the effects of which it is much more difficult to observe and control—as, for instance, chloral, aconite, antimony, arsenic, and belladonna. The last mentioned of these, belladonna, is a drug of which common report says children can take much larger doses relatively than adults, and yet it is the only one with which, up to the present time, I have ever in my own practice had any untoward effects among children. Some years ago I prescribed a cough medicine containing alum and half a drop of tincture of belladonna to the dose for two children aged respectively about three and five years. Two or three doses of this medicine were to be given an hour or more apart; the first when they went to bed and the others afterward if they did not sleep. In

the middle of the night I was summoned to the house, to find that two doses had been given to each child, and that the *younger* was in a sound sleep, more quiet and natural than she had enjoyed for many nights owing to the troublesome cough that had existed, while the *older* child was sitting up in bed wide-awake, with the pupils somewhat dilated, and the chest covered with a red rash. After watching the case for a time, I assured the mother that no harm would come of it, and the next day the child was as well as ever. This certainly was a marked instance of idiosyncrasy, for in the younger child the therapeutic effect was exactly what had been sought for, while in the older I had to deal with a mild case of belladonna poisoning. It was also a marked instance of what generally happens, if perchance a properly small dose of any powerful drug is given to a person who proves unusually susceptible to its influence, and it is that the effects are much greater than was desired, but in nowise dangerous and hardly very alarming.

It is unlikely that by my imperfect exposition of my views upon this subject I shall have persuaded anyone whose mind was already made up to the contrary, to come over to my side of the question, though it may be perhaps that those already of my opinion or in doubt about the matter, will be strengthened to pursue the method of treatment more boldly, or to try it. It is certain, however, that discussion of a subject has its good effects by causing opinion to crystallize more and more in the direction of the truth, and in this manner, at least, I trust my efforts will not have been entirely in vain.

THE PREVENTION AND TREATMENT OF CRURAL ADDUCTION.[1]

By HENRY LING TAYLOR, M.D.,
of New York City.

Most of the moderately advanced cases of hip disease that I have examined have presented an adducted thigh; and this is equally true of those who have first applied after the cure of their disease. Drs. Shaffer and Lovett in their admirable investigation of the "Ultimate Results of the Mechanical Treatment of Hip-joint Disease"[2] found 10° to 30° adduction in nearly one-half (11 out of 24) of the cured cases examined to determine this point; the report included only those cases treated at the New York Orthopædic Dispensary and Hospital who had been discharged cured not less than four years previously. There is no doubt that the proportion of adducted thighs in old cases cured by less thorough methods is considerably greater. Typically deformed old hip cases form one of the commonest and worst classes of the permanently crippled, and as seen on our streets, more than three-quarters show an adduction easily observable in the carriage of the body; in addition the thigh is usually flexed and inverted, and the deformity and disability are sometimes so great as to doom the sufferer to crutches for life. Take a few examples of the condition of the hip-joint in cured cases that had been treated by methods other than properly applied traction.

Case I.—Girl, twelve years old, first seen in 1880, having been free from symptoms of disease for five years. She had had right hip disease at five, lasting a year and a half. An abscess appeared in 1874, which discharged four months. Plaster bandage, short splint, and weight and pulley had been used, followed by crutches for two years; since then the patient had used one crutch. Examination showed a stiff hip, adducted about thirty degrees and considerably flexed and inverted. She wore a steel patten three inches high. This girl died of phthisis five years later.

Case II.—Girl, eighteen, seen in 1880. She had had double hip disease in childhood. There were eight large cicatrices about the hip; none had discharged for two years. Both thighs were ankylosed and adducted. The right was drawn in the most, and it was also flexed, so that the popliteal space of the right limb came directly over the inner condyle of the left femur; the legs were crossed bringing the inner borders of the feet to the outside. The inner (small toe) edges were six inches apart. The patient walked from the knees, which were loose.

Case III.—Male, eighteen, seen in 1883. Left hip disease in 1880. Leg and pelvis incased in plaster sixty weeks. Had been walking about and considered his hip well. There was but a trace of motion and the thigh was flexed and strongly adducted. When seen he was laid up with an acute abscess, probably extra-articular.

Case IV.—Gentleman, fifty years old, seen in 1885. Right hip disease when about four years old, abscesses followed and discharged two or three years. Patient had gone around all his life with leg drawn up and in, until a year before, when, owing to appearance of pain and increase of disability, he took a crutch, which he had used since. Right trochanter was two inches above Nélaton's line. Thigh was flexed and extremely adducted. There was pain in the hip, though he bore no weight on it. He wore about five inches extra sole.

Case V.—Gentleman, about thirty-two, seen in 1887. Right hip disease at four years, no abscess. Was walking in a year. Ankylosis with considerable flexion and adduction. Walked very fairly.

Case VI.—A lady, about twenty-seven, seen in 1887. Disease of left hip-joint at three years. Treated by weight and pulley with plasters below the knee. Disease, including a relapse, lasted five or six years, most of which time she was off her feet; the later part of the time she walked on crutches. She had a flail-knee from improper application of the traction. Extensive hip motion, but there was 15° permanent adduction, and two and a half inches

[1] Read before the New York Academy of Medicine, Orthopædic Section, Feb. 15, 1889.

[2] New York Medical Journal, May 21, 1887.

shortening. Walked with cane short distances only, and disability was increasing.

This recital might be considerably prolonged, but perhaps enough has been said to give an idea of the condition in which patients are frequently left after the cure of their disease, when imperfect methods have been employed.

When a patient has suffered from hip disease, which was not arrested in the earliest stage, but has gone on to destroy portions of the joint tissues, it is still possible for him to make a recovery which will be more or less perfect according to the protection afforded by the treatment. The ulcers and erosions in the joint may heal and be repaired by bone and cicatricial tissue, rough places may be somewhat smoothed off, sinuses and abscesses dried up, and the joint left free from disease. Even when this favorable result takes place (and we regularly expect it under the protective plan of treatment) the patient recovers with a more or less useful, but still a functionally imperfect joint presenting one or more of the following conditions:

1. Impairment or loss of hip motion.
2. Joint instability.
3. Shortening and atrophy of the affected limb.
4. Malposition of the thigh, which may be permanently adducted, or rarely abducted, with flexion, and often with inversion or eversion.

Of these regular sequelæ of the disease the malpositions are certainly the most serious as regards the comfort of the patient and the usefulness of the limb, and probably the most preventable and curable. I have never seen a case of ankylosis in good position of one hip where the locomotion was not excellent, and I have seen several ankylosed cases where the abnormality of gait was so slight as easily to escape notice, owing to the nearly perfect compensation at the lumbar spine, the knee, and the opposite hip.

Take as illustration CASE VII., a young man of nineteen, whom I examined in 1885. He had had left hip disease at two years, and had been treated on the protective plan by Dr. C. Fayette Taylor for several years. He had had an abscess which had closed years before. Home coöperation had not been of the best, but he got well with ankylosis in perfect position. In 1885, nine years after leaving off treatment, he was in rugged health and walked freely without support, and with a scarcely perceptible limp. The thigh was ankylosed, moderately flexed, parallel to the median line, and the two legs were equal in length.

Last year I examined a former patient, a lady (CASE VIII.) twenty-eight years old, whose left hip became affected in 1881. She was treated by recumbency with weight and pulley for a year and a half without benefit. At the end of that time she came under my care; the thigh was slightly flexed and considerably adducted and there was deep fluctuation in front of the hip. The adduction and fluctuation disappeared under protective treatment and she recovered with ankylosis in perfect position. At the last examination a year after her discharge, there was very slight flexion of the thigh, which was parallel to the median line. The affected limb measured one-quarter inch longer than its mate, as I convinced myself by repeated trials. Her health was robust, she walked freely without support of any kind and with a hardly perceptible abnormality.

Shortening after hip disease can be compensated, and, unless excessive, does not compromise the usefulness of the limb even when added to ankylosis. When a joint is so much eroded and relaxed as to afford no firm bearing, the limb may be less useful and the gait insecure, but this condition is not very common at the hip, at least in a disabling degree, except after excision. On the other hand, considerable flexion or abduction, or a moderate amount of adduction with or without actual shortening, seriously interferes with bodily equipose and harmonious muscular action, and tends to render the carriage so awkward and the gait so limping and difficult, that both the endurance and the locomotor capacity of the patient are much curtailed. Some flexion nearly always remains, and a moderate amount is favorable where stiffness exists, since it more readily than any other position permits both standing and sitting. Slight abduction of the thigh is also favorable, as it prevents crowding of the thighs and compensates shortening to a certain extent, but is not usually attained except as the direct result of special management.

Eversion ordinarily goes with abduction and inversion with adduction, but the association may be reversed. They are not usually very disabling in themselves.

Adduction is the worst of the malpositions and is bad in any degree. The pelvis is tilted up on the affected side, increasing practical shortening and bending the lumbar spine laterally in order to bring the limbs vertically parallel, balance is deranged, and spontaneous movements of the body and limbs are adjusted to an awkward position. Every muscle is used at a disadvantage, there is undue strain on the knee and back; the thighs are crowded together, and the patient's general health and vigor frequently suffer from the severe strain of movements performed under unnatural and hampering conditions.

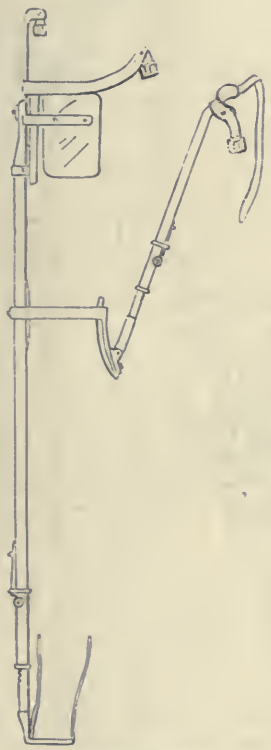
I have seen several cases where no cause other than crural adduction could be discovered for extreme rotary lateral curvature of the spine.

Adduction of the thigh from muscular spasm in the acute or progressive stages of hip disease is in some measure an index of articular irritation and in most instances readily yields to the protective traction required at that period, which can be adequately furnished by the long hip splint. The trac-

tion is always exerted in the line of the deformity, and is regularly combined with recumbency and the weight and pulley during the first few weeks of treatment. The leg falls easily into position as the spasm relaxes. Later in the treatment, if signs of irritation or tendency to deformity develop, the patient is again put to bed for a few weeks and the stretching repeated. Many cases treated from the early stages on this plan progress uninterruptedly toward recovery without the occurrence of deformity. In the rare cases in which properly applied traction fails to relieve the muscular spasm owing to products of inflammation confined in the joint, the tendency to adduction may continue until this is relieved.

Persistent adduction, especially in the recovering stages, or after the cure of the disease, whether from the severity of inflammatory irritation, subluxation of the eroded femoral head, neglect of proper treatment in the beginning, or from other causes, often requires special means to overcome it. The long hip-band carrying two perineal straps and the abduction screw were formerly employed for this object. With the idea of securing greater simplicity

FIG. 1.

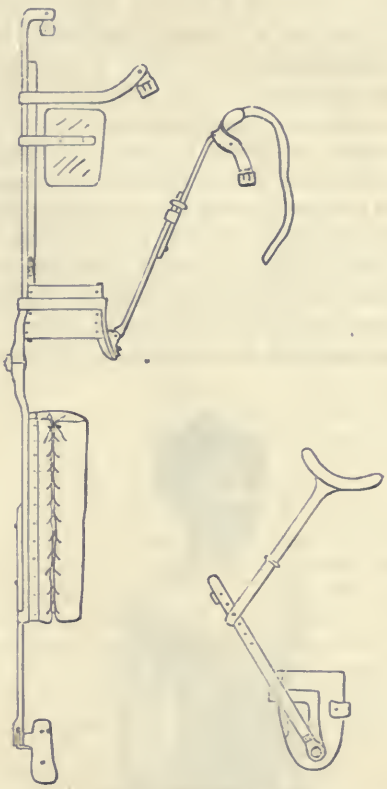


Traction splint.

and solidity of construction as well as greater precision of action the hip-band and abduction screw were discarded by Dr. Taylor some twelve years ago, and the traction splint used without a joint, the single perineal strap being carried on the anterior and posterior ends or horns of a properly curved stiff steel bar riveted to the side plate of the apparatus. This splint (Fig. 1 shows front view with ratchet abduction crutch added) furnishes any desired amount of traction, and limits though it does not abolish motion at the hip-joint; it has given great satisfaction in practice.

In the regressive and recovering stage after the subsidence of inflammation, we have found great advantage in the use of the jointed supporting splint (Dows',[1]

FIG. 2.



Jointed supporting splint.

Fig. 2, front view with toggle abduction crutch added) which enables the patient to use the joint and limb without subjecting it to injurious pressure.

When a direct abducting force is required we add to the traction splint or Dows' an abduction crutch or attachment (shown enlarged at right of Fig. 2). This consists in a double (compound) steel bar acting as a toggle-joint, the lower end of which is pivoted to the knee-plate of the apparatus, and the upper end terminating in a properly curved steel band covered with hard rubber and accurately fitted to the ischial fold opposite the affected hip. The length of the bar can be varied by shifting the pin jointing its two halves. When the toggle-joint acts, a direct abducting force is put upon the

[1] In use sixteen or seventeen years, shown at the Amer. Orthopædic Association Meeting, Washington, September, 1888. Its use as a supporting apparatus in weak joints after the excision of the hip has been suggested.

affected leg. This apparatus serves for comparatively mild cases or as a retaining apparatus after abduction has been produced.

For severe and long-standing cases the patient is put to bed with the traction splint applied, and a ratchet crutch (shown in Fig. 1), pivoted to the inner knee-plate of the apparatus, is applied, by means of which a progressively modified abducting force can be applied to the thigh. Usually a few weeks in bed with the ratchet abduction crutch, the leg being in a sling and extra weight attached to the traction splint, will cause exceedingly obstinate and long-standing cases to yield, as has been practically demonstrated several scores of times. On getting up, if the hip still requires protection, the traction splint or Dows' is used according to the special indications presented, and the toggle-joint abduction crutch is added as a retaining appliance, when necessary, since the ratchet abduction crutch is not conveniently worn except during recumbency.

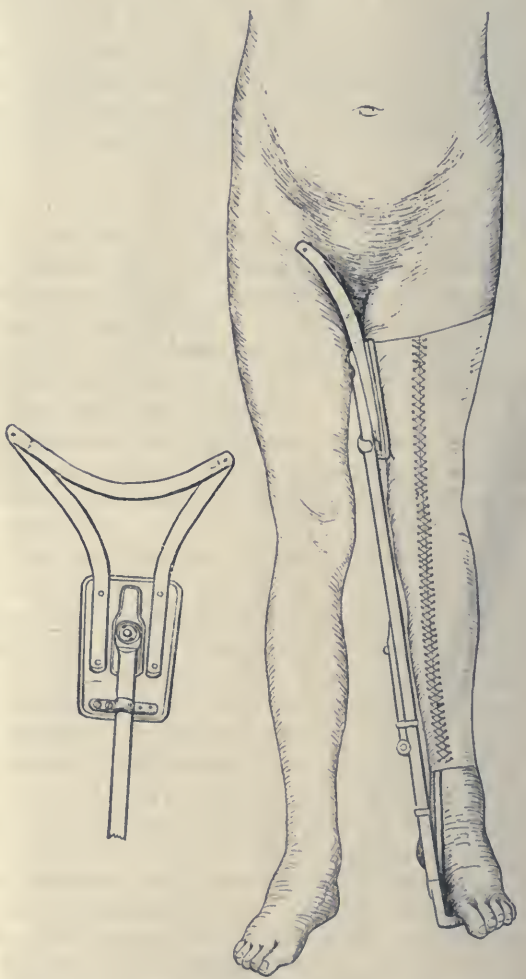
If no disease is present, the patient on getting up may or may not require retaining apparatus. If one is necessary to hold the thigh properly abducted for a longer or shorter period, the jointed supporting splint with toggle-joint abducting attachment, but without horns or perineal strap, often answers the purpose, but a more efficient apparatus is the median abduction splint (Fig. 3). It consists of an apparatus jointed at the knee and provided with a slip-joint at the ankle, the supporting bars being on the inside of the leg. Since it is not intended for hip protection, but merely as a retentive apparatus, with provision for knee protection, it has no perineal strap. It is secured by plaster to the inside of the thigh, as is the Dows', and has pivoted to the knee-joint the toggle abduction attachment. This leaves nothing to be desired as an abduction retainer, and as it can be worn indefinitely without discomfort, patient and surgeon are independent of time.

It would seem that the apparatus described, which have been in use more than a dozen years, met every indication in connection with the prevention and cure of the adducted position, but in dealing with a few particularly intractable cases, especially some due to causes other than hip disease, such as fracture of the femoral neck, old dislocations of the hip, etc.,

FIG. 3.

Median abduction splint.

FIG. 4.[1]



Long median abduction splint.

[1] Shown at the meeting of the American Orthopædic Association, New York, June, 1887, and described in the New York Medical Journal, November 19, 1887.

still more powerful means have been found desirable, and Dr. Taylor devised the long median abduction apparatus (Fig. 4). By means of this apparatus we can apply to the limb a very powerful, direct-acting abducting force, capable of exact regulation; and, after four years' experience in its use, I can report that from a few days to a few weeks have been sufficient to abduct the limb in the considerable number of cases in which I have used it. I relate a few cases illustrating the methods described.

CASE IX.—A stout boy of fifteen, recently discharged cured, had right hip disease at five years of age. He has had no disease for some time, but his treatment was prolonged by the strong and persistent adduction, which necessitated a week's stretching, two or three times repeated, with the long median abduction splint and the wearing of the jointed median splint as a retaining apparatus. The tendency to adduction was completely overcome, and the leg is now slightly abducted and flexed, with two inches shortening and a few degrees of motion. There never was an abscess; the boy's health is robust. He has left off all support and walks well.

CASE VIII., already related, came with a nearly stiff joint and about ten degrees of persistent adduction, which was observed after her long confinement in bed with the weight and pulley. The adduction was overcome by the use of the long traction splint, with abduction crutch worn in bed. She did well, but a year later the hip was still stiffer, and there was some recurrence of the adduction, which was overcome with the long median splint in about a week. On getting up she wore the Dows' splint with toggle abduction crutch, and was cured with ankylosis and perfect position (the limb slightly abducted).

CASE VI., already mentioned, is now under treatment for the adduction, although it is twenty years since her joint was cured. I applied the long traction splint with ratchet abduction crutch, and have attached adhesive plasters only above the knee, and in such a way that it is completely protected. The leg was quite resisting, but yielded to a few weeks' traction, and was thrown into abduction, so that I was able to remove three-fourths of an inch from the high shoe she was wearing. I am now making a jointed median retaining splint for her.

CASE X.—In a boy of thirteen, whose left hip was dislocated at birth, causing flexion and extreme adduction with great disability, complicated by extreme secondary rotary lateral curvature of the spine, I have been able to overcome the adduction whenever he took a few days in bed with the long median abduction splint. There has been difficulty in holding it owing to the lateral curvature, but the deformity has been greatly reduced.

CASE XI.—A lady of over fifty came recently with a severe senile coxitis with stiffness and over fifteen degrees permanent adduction. The deformity was overcome by a month's application of the long median abduction splint. There is also difficulty in this case, from special complications, in retaining the corrected position, and here, as in the preceding case, I still apply the long median traction splint at night, fastening it to the lower end of the supporting splint, with gratifying results.

CASE XII.—A girl of twenty applied at the N. Y. Orthopædic Dispensary and Hospital in 1874, walking on crutches, to which she had been confined ever since her trouble began. She had had left hip disease at ten, with very extensive abscesses, which discharged about two years. When seen in 1874 the thigh was extremely flexed, and Dr. Newton M. Shaffer, who remembers the case very well, says there was adduction and not much motion; the record is defective on these points. She was treated with the traction splint and in five weeks was able to walk about without her crutches; the shortening was two and a half inches. In a few months she left off the brace, but in 1877 suppuration recurred at the old site, lasting six months, and a supporting apparatus with abduction crutch was applied in 1878. She has been in the habit of reporting to us once or twice a year since then, and has been reluctant to give up her brace, though she has been well for many years. I took off the abduction piece two and a half years ago, and the entire brace six weeks ago. For over eleven years there has been no suppuration or sign of hip trouble. There is now extensive motion in every direction, no deformity, the thigh being slightly abducted; there is three inches shortening; she is in good health and walks readily without support and but moderate limp. This patient was shown at the meeting of the Section.

CASE XIII.—Girl, ten years old. Left hip disease at age of three. Came under treatment six months later and was one of those exceptional cases not readily relaxed by traction. Abscesses formed in Nov. 1884, and discharged for a year. Three years ago suppuration ceased and the patient has been free from active disease, in good health and walking nicely, but with rather persistent adduction, which has been treated with the median abduction splint (Fig. 3). This patient was exhibited to the Section to show the apparatus in action.

CASE XIV.[1]—A gentleman reported in 1883 with an adduction of the right leg of thirty years' standing, from an injury to the hip. When seen the adduction amounted to about twenty degrees, and could not be diminished by manual force; together with the actual shortening it necessitated an extra sole three inches and three-quarters in thickness. The adduction was completely overcome in less than two weeks, the legs restored to vertical parallelism, and the sole reduced to one inch and three-quarters, which represented the actual shortening. Progression was rendered very much easier, and the patient did not complain of pain or fatigue as he had done. The position was easily maintained by the jointed median splint. The apparatus used in this case to overcome the deformity was the long traction splint with ratchet abduction attachment (Fig. 1).

There is a large field for brilliant results in old cases of joint disease or joint injury which have long

[1] Reported in the N. Y. Med. Journ., Nov. 19, 1887.

since been pronounced cured, but whose limbs have been left in such faulty position that they are deprived in great part of their legitimate use.

With the improved methods described, the distressing and disabling deformity of crural adduction has ceased to be, in the large majority of cases, the formidable matter that it has been, and I believe that where proper attention can be secured permanent adduction need never occur, and that when this condition has supervened it can be safely and quickly removed with scarcely any discomfort to the patient, and without resort to the knife or chisel in nearly all conditions except bony ankylosis.

Mr. Christopher Heath has said:[1] "Our duties in a case of fracture should be considered to end, not when the bone is found to be united, but only when the functions of the limb have been as far as possible restored." These words apply with ringing emphasis to the treatment of joint disease.

201 WEST FIFTY-FOURTH STREET.

AN UNUSUAL OSSEOUS GROWTH IN THE FALX CEREBRI.

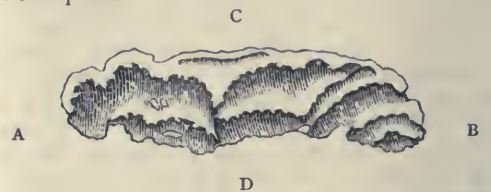
BY HALDOR SNEVE, M.D.,
ASSISTANT PHYSICIAN AT THE DAYTON ASYLUM FOR THE INSANE.

IN making a post-mortem on a colored patient who died in this institution January 3, 1889, I found the anatomical curiosity described below.

The patient, Turner Graham, was admitted May 15, 1888, suffering with *mania* of one year's duration, æt. forty-five years, servant by occupation, very intemperate, of limited education, and unknown heredity. On entrance physical examination showed man to be of little above the medium height, somewhat emaciated, head well formed for one of his race, old syphilitic cicatrices on legs, some consolidation at apex of left lung, heart sounds normal, slight cough and expectoration, and urine normal.

Patient emaciated rapidly, although he ate ravenously; cough and expectoration increased; and during the last few months of his life he had œdema of feet and ankles, although chemical and microscopical examination of the urine revealed nothing abnormal. He passed into *secondary dementia*, became filthy in his habits, and finally died of pulmonary tuberculosis, about eight months after admission.

AUTOPSY.—On removing calvaria, the bones of the skull were seen to be greatly thickened, measuring three-fourths of an inch at the occipital bone. *Dura mater* adherent to calvaria at its convexity, apparently healthy; considerable sub-dural fluid. *Pia mater* stripped readily from the convolutions. Brain very moist and unusually soft; section revealed no macroscopical evidences of disease. Passing my fingers along the great longitudinal fissure, they encountered a hard substance at its anterior part, enclosed within the falx cerebri; believing at first that what I felt was a calcareous deposit, I examined carefully all the vessels of the brain, but found no calcareous matter in the walls of any of them. All the tissues surrounding the substance were next carefully examined but they all looked healthy, no adhesions or thickenings indicating a preëxisting inflammation. The bone (as it subsequently proved to be) was enclosed within two thin layers of the falx cerebri; its long axis parallel with the long axis of the latter, and following the general curve of the falx. The posterior extremity considerably elevated above its anterior. The anterior point of the bone was distant about one inch from the anterior point of the cerebral hemispheres, and occupied a position about midway between the upper and lower edges of the falx. The wood-cut below represents the exact size of the specimen, and shows its left surface, the elevations and depressions corresponding accurately to similar ones on the internal surface of the left hemisphere.



A, represents anterior point; B, the posterior; C, the upper edge; and D, the lower.

The falx supplied the place of periosteum. At its thickest part, the bone is 6.25 mm. in thickness. Weight is 1.2 gm.

Both surfaces of the specimen exceedingly rough, and traversed by furrows and depressions; the surface of the falx being finely granular.

A section of the bone showed the interior to be cancellated, Haversian spaces rather small, and bony spiculæ passing in different directions without any apparent regularity or arrangement.

A section of the thin layer of compact substance under the microscope shows lacunæ and Haversian canals as in adult human bone. This bone was undoubtedly developed in the falx and in all probability was congenital. Its rough, excavated appearance would seem to indicate that it was being slowly absorbed, and at one time probably was of larger size. That it had any connection with or influence on the patient's insanity, is highly improbable. In the literature at my disposal, I can find no record of a similar osseous growth occurring in the falx.

[1] Minor Surgery, p. 297, 8th edition.

REPORTS OF SEVERAL CASES OF ANGIO-NEUROTIC ŒDEMA.[1]

BY ALLEN J. SMITH, M.D.,
ASSISTANT DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF PENNA.

THE literature of this peculiar condition is singularly meagre, and in searching the journals and works within my reach I have been unable to find any other references than those detailed in the paper presented to this Society some months ago by Dr. William Osler, upon an hereditary form of the disease. Pre-

[1] Read before the Philadelphia Neurological Society, January 29, 1889.

senting much the general characteristics of an extensive form of urticaria, and in its general aspect resembling this affection in most particulars, it has, by a number of writers, been referred to similar, but more extended, anatomical changes of structure in the papillary layer of the skin, with some neurotic etiological factor at the basis. This view, accepted by most dermatologists in the case of the urticarial wheals, includes an inflammatory condition. There is supposed to occur first a hyperæmia of the capillary vessels of the papilla, followed by the escape of a proportion of the white blood-corpuscles and serum from the vascular lumena, and grouping of these ele ments about the vessel walls, with gradual occlusion. In this manner the papilla is enlarged enormously, the blood is excluded from its structure; and macroscopically it shows itself as a white, bloodless papule, about whose base is a zone of hyperæmia, and covered by an epidermis shining and stretched from pressure from beneath. Section of the papular eruption in rabbits caused by the irritation of nettles, according to Neumann, confirms this view, and shows, moreover, a similar condition of the lymphatic tracts, the lymph corpuscles banked about the narrowed vessel, and aiding in the general swelling of the part. A number of such papillary swellings coalesce to the formation of a wheal, and the general mechanism is extended to explain the more widely swollen areas in this condition of acute, circumscribed œdema.

That such a condition, at times, does obtain is quite probable. The following case was seen some months ago in the southwestern district of the Philadelphia Dispensary:

A young woman asked relief for a recurring œdema of her face about the nose and eyes. Five years previously she had had a severe facial erysipelas, and since then each year at some time during the cold months, and each time preceded or associated with an acute nasal catarrhal inflammation, the tissues about the nose and eyes became swollen into deformity. The attack in which I saw her was the fourth. There was not the usual pitting upon pressure, the swelling being limited to the dermal structure and invading the subcutaneous cellular tissue; there was no pain, and no discomfort save the marked itching at times, which was readily allayed by sedative applications, as carbolized solutions. The skin was tense and shining, and the whole swollen area of the ordinary waxy hue of œdema. These attacks lasted for several days each, and disappeared as rapidly as they appeared. The nasal catarrh, however, was not especially influenced by the disappearance of the œdema, and each time continued for some days or weeks longer. No other parts of the body were in any way affected, and had not been in any of the attacks, and the disturbance was distinctly localized to the parts described.

In such a case, in which little or no neurotic element can be called in as an etiological factor, the whole process is explained by the ready extension of the nasal and conjunctival trouble to the adjacent dermal structures, whose power of resistance had suffered distinct shock, and probable deterioration, in the erysipelatous attack years before; except possibly the rapid and complete disappearance of the results of the process before the cessation of the inflammation from the primary site in the nasal mucous membrane. This might, however, be accounted for by a continuation of the catarrh for a longer time than the dermal symptoms because of the irritation from the passage of air and irritants over the inflamed membrane, the dermal being both of a slighter character and being more protected from agencies which would cause its continuation.

Another instance more closely connected with the subject in hand, perhaps, occurred in the case of a woman about the period of the menopause, with marked neurotic tendencies, during my service as a district physician in the above-named dispensary.

This woman first called medical aid for the relief of symptoms of muscular rheumatism, which yielded readily to salicylates. Following the administration of this drug some days, an attack of gastritis set in, and for a number of weeks the ingestion of any heavy food, or of fish, or certain vegetables, was invariably followed by a widespread eruption of urticaria, lasting for a few hours and then disappearing without further care. In several of these attacks there was associated facial swelling, especially marked about the eyes and cheeks, of transient duration, and only noticed because of its disfigurement and the persistent itching sensations attending both this uniform swelling and the more discrete papular and wheal-like eruption over the rest of the body. The swelling here was not so marked as in the first case, and presented to the touch a hard, firm sensation directly in the dermal tissues and not beneath. The surface here was not so completely bloodless as in the ordinary urticarial eruptions, but presented a somewhat mottled appearance—suggesting the probable method of origin from coalescence of a number of the larger wheals. These swellings ordinarily lasted a less time than the wheals elsewhere on the patient's person, and after leaving there remained for a time a slight burning sensation, and the parts became flushed. There was no renal disease noted from the urinary examination; and the only other symptom noted at the time was the passage of bright blood occasionally from the intestines. The origin of this was probably hemorrhoidal, but on account of the refusal of the woman no examination could be made.

To this same class in which are associated inflammatory conditions, might, with propriety, be relegated the case of a young man, a druggist, who incidentally mentioned the fact that at the outbreak of every cold—especially nasal—his under lip and the lobe of the left ear invariably became swollen, hot, and uncomfortable—lasting for a few hours or a day and then disappearing. The swelling is spe-

cially marked in the lip on the same side as the ear, and the relation between these two foci of œdema and the catarrhal inflammation probably depends to some extent upon the distribution of branches of the facial and auricular nerves, or the fifth nerve.

Whether this condition of an extension of some inflammatory influence—perhaps latent to outward observation—is invariably present in cases of acute circumscribed œdema is questionable; and unless, as suggested by this last case, this inflammatory influence be usually transferred through nervous activity, or a secondary focus of hyperæmia with resultant œdema be produced by nervous reflex, another condition must be invoked for further explanation. The fact that in the ordinary cases of this affection, whether marked by hereditary taint or not, the symptoms almost always follow the ingestion of some substance of indigestible nature would suggest the first idea, although it would not preclude the possibility of some other result than an inflammatory one from the nervous reflex from the focus of irritation.

The following case strongly suggests the possibility of this condition, consisting of a non-inflammatory origin and course throughout, depending upon the association of an hereditary tendency and general malnutrition as strongly predisposing causes and the occurrence of some unobserved exciting agency—in one instance ascribed by the patient to a psychical or moral agency.

The patient at the time of the first attack was about sixteen or eighteen years of age, in poor general health, anæmic and tending toward chlorosis. The attacks recurred without apparent cause or warning several times a year until she was twenty-two years old, a short while before marriage. The swelling was usually confined to the face, but on several occasions one or both arms partook in the process. Preceding the swelling there was a marked itching from urticaria, which, however, always disappeared before the œdema reached its maximum. There were no painful symptoms manifest, the only discomfort arising from the feeling of fulness and tensity of the parts. The duration of the attacks varied from a few hours to a day. In no way could indiscretions in diet be associated causatively with the attack. At the time of the last attack she was placed in the hands of one of the physicians of the University, who recognized the influence of the underlying chlorotic dyscrasia, placed her upon a ferruginous treatment and a carefully systematized mode of life, following which there resulted an almost immediate general improvement and since which there has been no recurrence of the œdema.

Shortly after she married, and in the four years of her married life she has borne three children, the older two healthy and robust, the third more or less sickly; has had a miscarriage last January and is now pregnant a fifth time. Notwithstanding the notable drain upon her system from prolific childbirth in the history she has given, her health has steadily improved. At present she is a well-nourished and well-developed woman, of slight stature, medium clear complexion, nervous temperament and apparently strong constitution. The father of this woman, a small, compactly built man, also neurotic, in early middle life had been subject to the same peculiar affection, manifesting itself in a similar manner. No record of further hereditary taint could be obtained; and the children of my patient are entirely without symptoms of a like nature.

It is entirely improbable that sufficient inflammatory action should be aroused to give rise to such marked and general symptoms without undoubted evidence of its presence; and the apparently causeless nature of the malady, the absence of digestive symptoms, would suggest a central and wide-reaching influence in their production. As an explanation of these phenomena, the occurrence of another instance which I shall presently narrate, has suggested the possibility of the existence of an acute lymphangioma, depending upon disturbances of the lymphatic vasomotor nervous influences. The proof of such a theory I acknowledge I cannot offer, but the appearances of the following case seem to agree with the supposition, and it is not impossible that others of the cases may be accounted for by the hypothesis.

Miss M., aged twenty-five years, one day in the early part of last November, while walking in the street, felt a peculiar stinging sensation throughout the right side of her body, and before she could reach her home, some squares distant, began to swell uniformly over this part of her person. The evening before she had eaten raw chestnuts and had had celery at her dinner. She was born with a large birth-mark over her entire right side; and this side has always been rather below the left in condition of nourishment, the limb and arm smaller and very slightly shorter, the mammary gland smaller, and the whole side more apt to become cold upon exposure or to feel fatigued upon exercise. The first attack occurred two years ago, and the one in which I found her was the third or fourth since then. The entire right side was swollen to marked disfigurement, the eye almost closed, and the mouth drawn because of the swelling to the affected side. The arm and limb were both markedly enlarged, and the whole surface hard and smooth, with no irregularities of swelling. The color was that which would be given by a thin coating of white powder over a dusky red. There was no heat in the swollen parts and no pitting upon pressure. There was no pain from the swelling, but during the attack several times she complained of slight colicky pains; the only sensation over the affected part was one of tenseness and fulness, with occasionally some itching. This condition lasted several days, and then gradually disappeared.

Examination of a bit of the fluid which came from pricking the swollen part, showed it to contain a large proportion of leucocytes, and the rest was clear serum; the urine during the attack presented no special peculiarities under the microscope or

upon a routine chemical examination. The tongue appeared slightly swollen, but no unilateral anomaly could be detected in the coating or color. The case has no hereditary history, has always enjoyed fair health until the last few years, since when she has grown to be regarded as delicate. Within the last three years she has twice fainted—both times in church—and has shown a number of hysterical traits.

This last case would suggest, from the color of the affected portions and from the absence of heat, the probability of the presence of another factor than one of a simply intensified angioma of the affected side. The absence of pitting on pressure and the rapidity of disappearance would appear to preclude the idea of serous cellular effusion (of inflammatory origin) with subsequent resorption, and the general conformity of the swollen portions with the angiomatous area of the right side would suggest a possibility of a similar condition of the lymph-vessels, due perhaps to the same altered innervation. Such an hypothesis, too, could, without undue strain, be brought to bear on the case of hereditary tendency, in whom there was no irritant cause apparent whatever; and it might with equal propriety, too, be extended to the case of œdema of the lip and lobe of the ear.

Fully appreciating the weak points in this train of arguments I have outlined, and unable from evident reasons to verify or deny my position, I would suggest as the outcome of such a set of instances the two provisional classes of acute circumscribed œdema:

a. Inflammatory—depending upon actual inflammatory processes in the papillary layer of the skin.

b. Neurotic—depending rather upon an angiomatous condition of the lymph-vessels of the corium due to alteration in nervous supply. To this latter variety might be applied, for the purpose of clearer definition, the term acute neurotic lymphangioma.

In the actual matter of treatment, too, there may a clearer line of separation be drawn between these two classes, the former depending largely for its alleviation upon local measures, the latter demanding general medication directed toward the removal of the systemic fault which is almost certainly present.

HOSPITAL NOTES.

INFIRMARY FOR NERVOUS DISEASES, PHILADELPHIA.

TREATMENT OF ATAXIA BY SUSPENSION.

The method of Motchonkowsky, of Odessa, introduced in 1883 for the treatment of tabes, and recently revived by Charcot, has been actively carried out in this institution for the past five weeks. In all, fourteen cases are under treatment. The method employed is practically identical with that recommended by Charcot, and consists in the suspension of the patient by the head and armpits for from two to three minutes. The Sayre apparatus can be used, or, what is equally convenient, the suspension made by means of pulleys arranged over a horizontal iron bar.

As a rule, the suspension is well borne. Care must be taken to have the pressure equable; not more in the neck than in the armpits. The slings beneath the arms need to be well padded and pushed well in; otherwise the pressure on the brachial plexus is unpleasant, and causes numbness.

Patients, after the suspension is over, are not released for a minute or so, as it is found that they are unsteady at first when let down.

The only unpleasant effect was in a patient who fainted during suspension and had convulsive movements; he recovered in a few minutes after being let down.

It is too early to speak as yet of the results obtained. There has not yet been in any case striking improvement.

MEDICAL PROGRESS.

The Treatment of Locomotor Ataxia by Suspension.—Prof. Charcot gives the following technical details, suggested by an experience acquired in the course of over 800 suspensions, practised under the supervision of his chief assistant, in the cases of forty patients. For, though the operation is in itself very simple indeed, it yet requires a certain skill that is more easily acquired with the assistance of definite rules, than by the sole experience of entirely original experiments.

The apparatus used is that contrived by Sayre, of New York, for the application of plaster jackets used in cases of spinal deviation. Though pretty extensively known, we shall give a short description of the form of it used in Professor Charcot's *clinique*. A transverse piece of iron, about eighteen inches in length, is suspended by means of a central ring to the pulleys which are used to lift the patient from the ground. Each extremity of the bar ends in a hook, intended to support the ring, which carries the straps intended to give support under the armpits. Several notches on the upper aspect of the bar serve to fix the rings from which hangs the head-piece. The latter consists mainly of two broad strips of leather, elongated oval in shape, moulded to receive the chin and the occiput respectively. These are connected above with the rings just mentioned, and are held in position by means of a strap sewn to the posterior flap, and fixed to buckles carried by the chin-piece, so as to hold the head-support in place when the patient is suspended. (Fig. 1.)

Much depends upon this strap, which must be tightened enough to prevent any slipping, and yet not sufficiently to cause compression of the bloodvessels of the neck, and thereby unpleasant head symptoms. It must be provided with a sufficient number of holes to accommodate itself to the varying thickness of the neck among those to be suspended. In case of need, which is not often, a soft body, such as lint or cotton-wool, may be inserted so as to prevent undue pressure of the strap or broad pieces upon the skin. It is necessary to exercise much care in fitting the head-piece and padding, so as to suit the peculiarities of each subject. The size of the head determines the notches into which the rings of the

head-piece are to be fixed; the larger the head the wider apart they must be, of course.

FIG. 1.

When the head is duly disposed of, the shoulder-pieces are slipped under the armpits. Though they may appear of minor importance, they really play the part of regulators during the period of suspension. For it is necessary that whilst lifted off the ground the patient should not be entirely supported by the head-piece, for then the traction would become, in some cases at least, absolutely intolerable. But though the weight of the body must be distributed upon other points, this additional support must not be so effectual as to prevent as complete an extension of the spinal column as possible.

FIG. 2.

The shoulder-pieces consist of elongated cylindrical padded cushions, terminating in straps provided with a series of holes so as to suit, by appropriate lengthening or shortening, the requirements of each patient. (Fig. 2.) This adaptation is very important; for if too short, the shoulder-pieces exercise such a pressure upon the axillary vessels and nerves as to compel the operator to bring the suspension to an abrupt and premature termination. If, on the other hand, they are too long, the traction on the structures of the neck may become too painful to be tolerated, and interfere likewise with the treatment.

Careful trials are necessary to determine the exact length of the several straps; but after three or four operations it becomes easy to decide the arrangement suitable for each case.

When all is ready, the physician orders his assistant—with some practice he may do without one—to apply traction upon the cord, very gently and slowly, so as to avoid jerks, and to accustom gradually the muscles and ligaments to the unusual tension to which they are going to be submitted. The patient is to be cautioned not to make any movements whatever whilst he feels himself being lifted off the ground, for they would give rise to unpleasant lateral and rotatory displacements. (Fig. 3.)

FIG. 3.

As soon as the toes cease to touch the floor, the operator holds the patient lightly, so as to check any oscillation or torsion of the cords, and carefully watches the number of seconds that elapse, so as to regulate minutely the length of each suspension. During this period the patient is made, at intervals of fifteen or twenty seconds, to raise his arms laterally away from the body, so as to transfer more weight upon the head-piece, and so render the traction upon, and elongation of, the vertebral column still

more complete, as complete as is tolerated by each individual. Much care and vigilance are to be bestowed upon the proper performance of these abductions of the arms, both by patient and physician. As a rule, the longest time of suspension must not go beyond four minutes, three minutes being taken as the average duration. Half a minute is enough at the outset, the maximum being gradually reached during the first six or eight applications of the treatment.

Here again it is essential to take into account certain individual susceptibilities or physical peculiarities, among which stands foremost the body-weight of the patient; for whilst a person weighing from about 130 to 150 pounds may be suspended forthwith during two minutes or more, the case is quite different in the case of those whose weight reaches 180 pounds or more. In the latter, the tension to which the structures of the neck are subjected may become very severe and painful, and be felt sometimes for a whole day afterward—an occurrence which must be avoided if the treatment is to be correctly carried out.

It is well to note that certain patients have such a wish—a very natural wish—to get better, that they think themselves bound to stand any amount of pain without complaining; but this circumstance is positively detrimental to the success of the treatment, which must be accompanied with but trifling discomfort at the most, without real pain or fatigue, lest it should defeat its own ends.

The maximum length of the suspension must, therefore, be suited to the requirements of each patient; it is obvious that in the case of heavy persons the effect on the spine must be very thorough and effective, owing to the greater traction to which it is subjected. Suspension must not be carried out oftener than once on alternate days, otherwise it may become more hurtful than beneficial. The time of the day is indifferent, but regularity in the operations is to be observed.

When the full time has elapsed, the operator very gradually lets the rope loose, so as to avoid every trace of jerking during the descent. The patient is to be supported whilst being freed from the apparatus, and made to rest awhile in an armchair brought near for the purpose.

The patient, before the operation, should divest himself from his coat, so as to give freedom to the arms, and his neck must be free from any pressure from the collar, so as to avoid any trouble or discomfort from compression about the neck. Sayre's original apparatus usually comprises a movable tripod, to the top of which the upper pulleys are fastened by means of a hook. This tripod is not to be used for suspending ataxics, who, being often deficient in power to sustain their equilibrium, are apt to seize convulsively its legs in order to steady themselves, and in so doing would knock down the whole apparatus, and injure themselves and the bystanders. As shown in the figure, the suspensory apparatus must be fixed to an iron ring firmly screwed in the ceiling.

The results obtained by Professors Eulenberg and Mendel at the Berlin Clinic for Nervous Disease in the cases of twenty ataxics, fully confirm, so far as can be judged from the comparatively recent introduction of the new treatment, the encouraging outlook sketched out in Professor Charcot's communications. The improvement observed bears chiefly upon the walking power, the equilibration, the lightning pains, and, in a few cases, the bladder troubles. Moreover, no bad symptom whatever has been observed, even in the case of the female patients who are undergoing the regular course of suspensions. At the same time, the most sanguine observer must acknowledge that it is entirely premature to come to any definite conclusions upon a point of such deep perplexity as the question of the possibility of absolute cure of locomotor ataxia. Physicians and patients alike must beware from falling into the temptation of conceiving exaggerated hopes as to the final results, in the presence even of effects as incontrovertible as those testified by so many able and critical observers.—*British Med. Journal*, March 9, 1889.

Acetic Acid in Gynecology.—The *Gazette de Gynécologie* states that solutions of acetic acid are as antiseptic as solutions of carbolic acid; the solutions are inoffensive, never producing any phenomena of poisoning, and are besides somewhat hæmostatic. Apart from this, acetic acid possesses the property of impregnating the tissues with a greater facility than other antiseptics; it has thus an advantage over sublimate, which latter, in the presence of albumin, produces insoluble compounds. Acetic acid injures instruments to a less degree than does sublimate; a pair of forceps can with safety remain fifteen minutes in a three per cent. acetic acid solution without being damaged. As soap is insoluble in acetic acid, one would have to wash his hands several times after handling the acid, an operation which is somewhat annoying. For ordinary antiseptic washings a three per cent. solution will suffice, while for cases of septicæmia a five per cent. solution is required.—*Revue de Thérapeutique*, March 1, 1889.

Treatment of Carbuncle by Iodoform.—Mr. Whitehead, of Manchester, has successfully treated three cases of carbuncle, by the subcutaneous injection into the base of the tumor of a concentrated ethereal solution of iodoform. In each instance a momentary burning pain was experienced by the patient, but this was immediately followed by permanent relief from suffering. On the second day the induration and redness had subsided, and the central slough was dry and withered. Within a week all traces of the disease had disappeared, with the exception of a dry superficial dark scaly scab, which eventually separated without leaving any conspicuous indication where the carbuncle had been.—*British Med. Journal*, March 2, 1889.

Chorea and Antipyrin.—Dr. Jules Simon states in the *Revue de Thérapeutique*, March 1, 1889, that antipyrin is the drug which has given him the best results in the treatment of chorea. He begins with the administration of eight grains, which quantity is increased every twenty-four hours by eight grains until he reaches the daily dose of sixty grains; this quantity suffices for children between the ages of fourteen and fifteen years. The mode of treatment is well borne, the author having only occasionally seen such symptoms as swelling of the face, scarlatinoid eruption or general fatigue follow the administration of the drug. But even these few annoying symptoms can be avoided if the drug be given in eight grain doses and at divided intervals during the twenty-four hours. The taking of some liquid after each dose will prevent gastric disturbances.

Aneurism and Epilepsy.—At the recent meeting of the local branch of the British Medical Association, one of

the most interesting demonstrations was that by Dr. Macewen. He showed, first, a man who had been subject to epileptic seizures for many years. A year ago Dr. Macewen removed a tumor from the cerebrum, with the result that the seizures have entirely ceased. The second subject demonstrated was a new method for the cure of aneurism, in which the object of the surgeon is to produce in the cavity, not blood-clot, but a "white thrombus" of connective tissue. This is accomplished by passing needles into the aneurism in such a way as to pass through one wall of the sac and just to touch the lining of the opposite wall; the current of blood causes an oscillation of the needle and a number of fine scratches on the inner surface of the endothelium, irritating it slightly and leading to the proliferation of leucocytes. From these connective tissue is formed, and a white fibrous mass develops on the inner surface of the sac. The irritation is repeated at interval of days, the needle being introduced at different spots. The result is the formation of a strong layer of connective tissue, which is firmer than red clot, and involves no danger from embolism.—*Lancet*, March 2, 1889.

Chloroform in the Treatment of Dyspepsia.—Chloroform administered in the various forms of dyspepsia overcomes fermentation and flatulence; it is best given in the following formulas:

1. *Method of* DR. WILS.—From ten to twenty drops of chloroform, to be taken in a few spoonfuls of sweetened water, in flatulent dyspepsia. After a few minutes eructations occur, followed by improvement.

2. *Method of* DR. HUCHARD.—Administer before each meal one dessertspoonful of the following:

℞.—Chloroform water . . . 150 parts.
Mint water . . . . 30 "
Water . . . . . 120 " —M.

Or, from eight to ten drops of the following mixture in a wineglass of water:

℞.—Tincture of nuc. vomica, Tincture of gentian, Tincture of anise } āā ʒj.
Chloroform . . . . gtt. xx–xl.—M.

An appropriate diet and oxygenated waters at mealtimes form part of this treatment.

3. *Methods of* DRS. REGNAULT *and* LASÈQUE.—This treatment applies particularly to painful dyspepsias with dilatation of the stomach:

℞.—Chloroform water . . . 150 parts.
Orange-flower water . . 50 "
Water . . . . . 100 " —M.

One dessertspoonful to be taken, at intervals of fifteen minutes, until the pain ceases.

Or the following for the same affections:

℞.—Chloroform water . . . 150 parts.
Tincture of anise . . . 5 "
Water . . . . . 145 " —M.

—*Revue gén. de Clin. et de Thérap.*, February 28, 1889.

Resection of a Portion of the Ileum.—DR. FREDRICO RUBIA, of Madrid, recently communicated to the Spanish Royal Academy of Medicine an interesting case in which he performed successfully a somewhat extensive resection of the gut in the wards of the Instituto de Terapéutica Operatoria of Madrid. The patient was a woman of thirty-two years of age, who, after eating a quantity of cooked vegetables, was seized with violent abdominal pain, a swelling appearing at the same time in the right groin. Vomiting and constipation followed. Subsequently the tumor in the groin became inflamed and opened in two places, viz., at the external inguinal ring and at the lower part of the right labium. From these fistulous openings feces kept continually escaping, rendering the patient's condition most deplorable. Attempts were made during many months to get these openings to close up, but, although temporary improvement followed some of the means used, it ultimately became evident that unless some radical operation was resorted to the patient must necessarily succumb. Having given purgatives and enemata to empty the bowels, and a disinfecting bath to cleanse the surface, Dr. Rubia performed laparotomy, making a small incision in the spot usually selected for the ligature of the external iliac. This brought into view the cæcum with the vermiform appendix. He then hooked up the coils of the ileum one after another; the third of these presented an opening with fungiform edges, three centimetres and a half in length by two centimetres and a half in breadth, and surrounded by a very unhealthy-looking area—which, indeed, occupied the whole circumference of the gut. Under these circumstances, it was felt that any attempt to close the opening would assuredly end in failure, and that the only alternative was to excise a portion of the gut. About eight centimetres were consequently excised, together with a V-shaped piece of the mesentery; catgut sutures were applied, and the patient made a good recovery, normal defecation taking place on the second day after the operation.—*Lancet*, March 2, 1889.

Permanganate of Potassium in Amenorrhœa and Dysmenorrhœa.—DR. J. M. LWOW (*Medicynsk. oboscenje*, 1888, No. 19. *Wratch*, No. 6) divides his 187 cases affected with these disorders into five groups: 1. Young girls, somewhat chlorotic, but otherwise healthy, who complain of severe pain during menstruation and of diminution of the amount of the flow, 32 cases. All were rapidly cured by taking from four to six grains of permanganate of potassium in extract of pulsatilla shortly before the period of menstruation. 2. Women suffering from extreme involution of the uterus after birth, or from atrophy of the uterus and ovaries, 17 cases. (With most of these patients two years had passed since they last borne children.) Permanganate of potassium taken in the same doses from three to six months without interruption, reëstablished already, in four or six weeks, the menstrual functions, which remained regular provided the drug was continued. 3. Slow involution of the puerperal uterus in connection with old, inflammatory processes of the uterus and its appendages, with slight but very painful menstruation, 62 cases. Here the results were also satisfactory, although some cases proved unsuccessful—namely, those in which puerperal illness had left irreparable changes. 4. Blennorrhœa of the vagina and uterus, 65 cases. In these cases the drug, though continued for some time, had no effect whatever. 5. Women in whom menstruation had begun too early and ceased between the ages of thirty-five and forty, 11 cases. No results.—*Therapeutische Monatshefte*, February, 1889.

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RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH.

The process of taking stock, of finding out the exact amount and nature of our possessions, is at least as valuable in the mental as in the physical world. In a paper read before the Medical Society of Munich, on December 4, 1888, Stintzing has done this important work for the department of diseases of the stomach. After a critical examination of the various methods of testing the functional capacities of this viscus, he propounds the only question of interest to practical physicians: What have they taught us? In the first place, as he tells us, we have learned the paramount importance of hydrochloric acid in the act of digestion. It is not so long since pepsin was regarded as the panacea of every gastric trouble, whereas we are now well aware that in the gradual disappearance of the digestive agents pepsin never takes precedence of hydrochloric acid. We have learned to recognize the two extremes of anacidity and hyperacidity, and for a time were inclined, in accordance with the researches of von den Velden and Riegel, to regard the former as pathognomonic of carcinoma. Although we are now aware that hydrochloric acid may be absent in other morbid conditions, such as dilatation without carcinoma, motor insufficiency, chronic catarrh, and atrophy of the mucous membrane, yet its absence in carcinoma is a diagnostic point of the greatest importance. For example, the differential diagnosis between simple ulcer and carcinoma is now rendered a comparatively easy matter, since hydrochloric acid is never absent in the former disease. On the other hand, Stintzing declares that he has never found it in carcinoma, but does not state in how many cases of this disease he has tested the gastric secretions.

The symptom called pyrosis has long been recognized as due to hyperacidity, although the nature of the acid or acids causing it was, until recently, unknown. It is now established that there are two varieties of pyrosis, one depending upon an excessive secretion of hydrochloric acid, the other upon organic acids caused by abnormal fermentations. For the former, Sticker has proposed the term *pyrosis hydrochlorica*. Hyperacidity is a frequent though not an invariable accompaniment of gastric ulcer.

The new methods of research have enabled us to distinguish from hyperacidity a condition of hypersecretion, by which is meant the secretion of gastric juice by a fasting stomach. This condition is by no means fanciful, but is a well-recognized and serious pathological aberration. According to Riegel, there may be withdrawn from a hypersecreting stomach during a fasting interval as much as a pint of acid fluid capable of digesting albumen. The causes of this condition, which was discussed in The Medical News, October 1, 1887, are not fully known, although it is probable that they often have their origin in the nervous system. In support of this view, it may be mentioned that Sahli has observed a hypersecretion of gastric juice during the gastric crises of a tabetic patient. The condition of hypersecretion may, therefore, be either transient or permanent, and in the latter event is generally associated with dilatation. In the first thirty to forty-five minutes of digestion the acidity of the gastric juice is caused by lactic acid. If this acid appears in later stages of the process, its presence is caused by undue detention of food or by deficiency of hydrochloric acid. The tests for lactic acid are, therefore, of importance in the diagnosis of diseases of the stomach.

Studies of the milk-curdling ferment, the *labferment* of the Germans, have lately been instituted by Johnson, Klemperer, and Boas, and the latter has shown that as pepsin is preceded by propepsin, so is the labferment by labzymogen. The latter is developed into the former, and acquires its milk-curdling property by the action of hydrochloric acid. Labferment is always present in the stomach, except in high degrees of atrophy, and even in these its forerunner, labzymogen, may be found. The diagnostic value of the absence of this ferment is no greater

than that of hydrochloric acid, on the action of which, as already stated, it depends for its existence.

The absorbent power of the stomach may be tested with iodide of potassium, which was first employed for this diagnostic purpose by Penzoldt and Faber in 1882. Three grains of iodide of potassium are given in a gelatine capsule, and the saliva which has been previously shown to be free from iodine is tested for this substance. If the stomach is healthy and empty, the first iodine reaction appears in from six and one-half minutes to eleven minutes. If the capsule be swallowed immediately after a meal, the reaction does not appear until from twenty to thirty-seven minutes have elapsed. According to Stintzing, it may not appear, under these circumstances, until forty-five minutes after the capsule has been swallowed. In dilatation of the stomach, in cancer, ulcer, and chronic catarrh the absorbent power of the stomach has been shown by this test to be diminished.

The digestive and absorbent powers of the stomach having been tested, the examination is completed by ascertaining its motor ability. Until quite lately, the only means of determining this point was based upon the fact that a healthy stomach has discharged its contents into the intestine seven hours after a meal. It the stomach was proved to have emptied itself in that time, its motor function was assumed to be normal. Such a method, however, gave no reply to the question whether the gastric peristalsis had begun at the proper time. Quite recently a drug was discovered, or, rather, invented, the chemical properties of which rendered it singularly valuable as a test of the motor function of the stomach. This drug, which is salol, is insoluble in the acid secretions of the stomach, but dissolves in the alkaline fluids of the small intestine, in which it breaks up into its component parts, phenol and salicylic acid. The latter is excreted with the urine, in which it may be recognized by testing with chloride of iron. In health, according to Ewald, this reaction may be obtained in from thirty minutes to one hour after the ingestion of fifteen grains of salol; whereas, in cases of gastric dilatation the reaction, as a rule, does not appear until from ninety minutes to three hours after the same dose. These figures, of course, include the time occupied by the stomach in propelling the salol into the duodenum plus that necessary for the salol to be decomposed, absorbed by the portal vessels, pass the barrier of the liver, enter the general circulation, and be excreted by the kidneys. Ewald and Sievers, by experimenting in a case in which colotomy had been performed, determined this latter period to be between twenty and thirty minutes. By subtracting these sums from the average time in which the urine reaction is obtained, viz., forty-five minutes, it would appear that the time necessary for the healthy stomach to expel a dose of salol into the intestine is from fifteen to twenty-five minutes.

This salol test can scarcely be called clinical, for, apart from the delicate nature of the urine test, which is a part of it, it is impossible for most individuals to pass their urine at intervals sufficiently short for the object in view. On these accounts Stintzing has attempted to apply the test for iodine in the saliva to the determination of the motor function of the stomach. He administered iodide of potassium in keratin pills—which are, theoretically, insoluble in the stomach—and tested the saliva, at intervals, for iodine, just as is done in testing the absorbent function. At the first experiment, the iodine reaction appeared in exactly the same time as the salicylic acid reaction in the urine after the ingestion of salol. Stintzing, however, conceived the happy idea of examining the stomach contents for iodine, and found it present. It might have been swallowed, and, therefore, in a second experiment, as soon as the first traces of iodine appeared in the saliva he withdrew the stomach contents and found the iodine reaction to be much stronger in them than in the saliva. The method is, therefore, inapplicable to the object in view, and the experiment demonstrates that, as already suspected, keratin pills are not insoluble in the stomach.

The latest test of the motor power of the stomach is that just presented by Klemperer. This experimenter introduces into the empty stomach 26 drachms of olive oil, and after a certain time washes out what is left in the viscus. The deficit determines the motor capacity. Under normal circumstances, the stomach discharges from 18 to 21 drachms of the ingested oil into the duodenum in two hours. In cases of chronic catarrh only from 6 to 11 drachms out of the 26 were emptied in the same time, and in a case of atrophy only 6½ drachms. Supposing it possible to wash out all the ingested oil, Klemperer's test is the most accurate yet employed, but the question arises whether the behavior of the stomach toward a quantity of oil so great as virtually to constitute a foreign body, is the same as toward the ordinary nutritious substances.

The difficulties in the way of the general clinical use of this test are also, it is needless to say, insuperable.

The most important results of modern gastrological research have now been enumerated, and it must be admitted that the array of precise therapeutic indications which they furnish is unequalled in any other department of medicine. Nearly forty years ago one of the greatest clinicians of Germany gave utterance to almost hopeless views concerning future progress in the knowledge of diseases of digestion. Through the methods above outlined, and especially through the use of the sound, this pessimism of Frerichs has been shown to be without real foundation.

ACCIDENTAL DEATHS AMONG INFANTS.

Infant mortality by accident and negligence is a marked figure in English statistics, especially in regard to the deaths of male infants. The annual summary of the Registrar-General for the year 1887 makes it clear that not only neglect in regard to infant life prevails, but that there is a ruthless sacrifice of it worthy of the days of Herod. In London more than half of all accidental deaths among males falls upon children under five years; among females, over three-tenths. For all England, one-fourth of all deaths by accident among males falls upon those under five, and among females about the same proportion. But totals being next considered, there are nearly twice as many males as females registered as dying in this class, thus: males, all ages, 11,103 deaths; females, 4415; total, both sexes, 15,518. Under five, males, 2150; females, 1712; total accidental infant mortality being 3862.

The excessive loss of infant males in London and some other large cities has been studied and theorized upon not a little, but a satisfactory explanation of its causation has not yet been found. In it is one of those unsolved problems that stand up to challenge the efforts of the humane and philanthropic for the reduction of violent causes and for an increased watchfulness and care for infant life.

At their recent annual commencements, the degree of Doctor of Medicine was conferred by the respective institutions as follows: University of Louisville, 129; Medical College of Ohio, Cincinnati, 85; Long Island College Hospital, 47; Woman's Hospital Medical College, Philadelphia, 36; Miami Medical College, Cincinnati, 22; Baltimore Medical College, 21; Michigan College of Medicine and Surgery, 11.

The collections in New York City for the Hospital Saturday and Sunday Fund amount to $51,250, a slight increase over the total for last year, when $50,500 were received.

At the dinner of the Alumni of the Long Island College Hospital, on March 13th, an agreeable surprise interrupted the feast, in the shape of the presentation of a check for $10,000 in aid of the work of the Hoagland Laboratory. The donor, the venerable Dr. Daniel Ayres, has been all his life long a diligent pathologist, and has reason to know the advantages of a fully equipped laboratory.

The University of Vermont has given expression to the growing appreciation of the medical relations of life insurance by the origination, in its medical department, of a new chair having for its title the Professorship of Physical Examination for Life Insurance. The Faculty have selected Dr. Charles F. Stillman, of New York City, as the first occupant of this chair.

The number of Americans taking the clinics and special courses at Vienna, according to the *Gazette Médicale de Paris*, appears to increase with each succeeding year. The practical courses given by the "Privat-docents" are the most popular. The Americans are credited with paying liberally, and are welcomed with *empressement* by the professors of the various specialties.

REVIEWS.

A Treatise on the Diseases of Women, for the Use of Students and Practitioners. By Alexander J. C. Skene, M.D., Professor of Gynecology in the Long Island College Hospital, etc. 8vo. New York: D. Appleton & Co., 1888.

This is a practitioner's text-book, for the use of practitioners. Dr. Skene has made no attempt to compile an encyclopædia, nor to state the theories regarding the functions and diseases of women; he has thought out for himself the problems which confront the practitioner of gynecology and embodies his conclusions in clear and forcible language. The work is especially well illustrated; after the discussion of each subject are placed clinical histories of cases explaining the previous text; the pictorial illustrations are the best we have seen upon this subject.

After a succinct account of methods and instruments for examination the facts known regarding menstruation are briefly stated; disorders of menstruation are treated

of by the narration of illustrative cases without theoretical discussion, an uncommon, but admirable method. Flexions of the uterus, often so little amenable to treatment, the author manages with fair success by amputating or resecting the cervix, correcting the imperfect invagination of the cervix by a plastic operation, or the stem pessary, as the case demands; he regards dilatation of the cervix to permit the introduction of the index finger dangerous and unnecessary,

Injuries to the pelvic floor are treated with great clearness and thoroughness. The difference between properly and improperly applied stitches; the fallacy of closing a skin laceration to the neglect of deeper structures; the importance of injury, relaxation, and paralysis of the deeper structures of the pelvic floor are all impressed upon the reader's mind and well illustrated; this is one of the most satisfactory sections of the work.

Sclerosis of the uterus, the result of areolar hyperplasia, receives especial description from Dr. Skene, by whom the descriptive term was introduced. Membranous dysmenorrhœa the author believes to be caused by deranged innervation, malnutrition, and ovarian excitation, and not by inflammation; his belief is founded on clinical experience.

Lacerations of the cervix are treated with the richness of illustration which is remarkable in the section on lacerations of the pelvic floor.

For displacements the author prefers the surgical term dislocations of the uterus. In discussing the mechanical support of the dislocated organ the views of Dr. Frank P. Foster are adopted; a section illustrating the abuse of pessaries warns against this blunder, while their judicious employment is commended and clearly illustrated. Alexander's operation has not been found a necessary expedient by the author. The electrical treatment of fibromata, as employed by Engelmann, is described; Keith's operative procedures in grave cases are narrated, and some very interesting cases illustrating the natural history and spontaneous cure of fibromata are recorded.

The author believes that "a great many affections of the brain and nervous system are due to disease of the ovaries." He applies the term "tubo-ovariotomy" to the operation often called "the removal of the uterine appendages"—a term he considers absurd. The diagnosis and operation for ovarian tumors are very clearly described; the author is not infected with the modern fear of morphia for pain after ovariotomy, and in his hands flatulence is relieved by quinine *per rectum*, and not by salines. The author's mental focus regarding affections of the Fallopian tubes is apparently normal, for they receive treatment proportionate to their frequency and importance at his hands. Diseases of the pelvic peritoneum and cellular tissue and of the bladder and urethra are treated with the same practical facility which characterizes other portions of the work.

From extensive investigations in Kings County Asylum, Dr. Skene has prepared an extremely valuable paper on "Gynecology in its Relations to Insanity in Women." While disease of the female reproductive organs not infrequently causes insanity the local disease in many cases is a symptom of the general implication of the cerebro-spinal centres of the organism in processes whose most marked manifestations are in a disordered mind. Hence there are cases in which the gynecologist can aid greatly in restoring the balance of mind and body by removing local irritation, while there are other cases in which his efforts must be confined to diagnosis only.

This chapter closes appropriately one of the most practical works on gynecology in the language. In his desire to concentrate the reader's attention on the fact under discussion Dr. Skene omits all references and statements of theory only; what the writer has proved by personal labor and observation, admirably illustrated by words and drawings, is clearly and tersely given. We know of no more reliable source of practical information on gynecology than this book.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, February 14, 1889.

J. LEWIS SMITH, M.D., IN THE CHAIR.

TUBERCULOSIS OF THE TESTICLE IN AN INFANT.

DR. KOPLIK presented a child two years of age, whose father had died of chronic pulmonary disease at the age of thirty-six. The child had coughed since birth, and eight months ago the left testicle began to swell. At present the testicle is the size of a hen's egg, not painful to the touch; the scrotum showed a fistulous opening leading into the diseased organ; the pus from this fistulous tract contained tubercle bacilli. Another fistula was situated in the calf of the leg. The child suffered from occasional diarrhœa. There was an area of dulness in the lung, and numerous glandular swellings all over the body.

DR. A. JACOBI remarked that tuberculosis of the testicle is rare in the young. In the case presented, the many swollen glands indicated general tuberculosis. He thought local treatment out of question, and believed general treatment to be of little benefit. The fistula in the calf of the leg appeared to come from the fibula.

DR. CARR stated that Monks had reported a case of tuberculous testicle in a child five months old, in the *British Medical Journal*, December 27, 1884.

DR. J. H. HOLGATE showed a child, three years old, illustrating

REFLEX MOTOR DISTURBANCE,

from accumulated smegma underneath an adherent prepuce. The child had been unable to walk at the age of two and a half, its limbs being flexed at the hip and knee, and it suffered from dysuria. After proper treatment of the prepuce, these symptoms disappeared, and the child could now walk alone. He also showed a child one and a half years old, whose persistent enuresis had stopped after freeing the glans penis from an adherent prepuce.

DR. T. HUBER presented two children upon whom he had operated for

PERITYPHLITIC ABSCESS.

In the one case (a boy of ten) the prominent symptoms were pain in the ileo-cæcal region, vomiting, and diarrhœa. In consequence of beginning peritonitis with tympanites, the usual dulness and tumor were absent.

The aspirating-needle revealed pus, which was evacuated by a free incision followed by drainage. On the third day the dressing showed fecal matter. Recovery was complete after two weeks. In the second case the inflammatory tumor was located in the right iliac fossa. The abscess was cut down upon and evacuated. Four days later a large piece of sloughed tissue passed away, and a fecal concretion was found on the dressing on the twenty-third day. Recovery took place in due time. In his experience over a dozen cases of perityphlitis had terminated in resolution.

During childhood the appendix vermiformis is, as a rule, very long. Most cases of perityphlitis occur in males, previous peritonitis being a predisposing factor. A prodromal stage of several weeks is not unusual, a tingling in the right leg being one of the symptoms. Occasionally it may be difficult to differentiate beween hip-joint disease, acute oöphoritis from gonorrhœal infection in young girls, and perityphlitis. But an examination per rectum will often suffice to locate the trouble. Aspirating-needles should be inserted obliquely. Gill Wylie advocates laparotomy in the median line in doubtful cases.

Prognosis in the young should be guarded. As regards treatment we should order rest, liquid food, opium, morphine hypodermatically, and not purgatives. According to Lawson Tait, salines are indicated after operation. As a topical measure, the ice-bag or hot turpentine stupes should be employed, and the rectal tube to remove flatus. As regards operation, Dr. Bull advises, the more rapid the symptoms, the sooner surgical interference.

Dr. Hanks remarked that, as far as his observations went, cold had some influence in promoting suppuration, which, when once established, should have prompt surgical treatment. The differential diagnosis between perityphlitis, intestinal obstruction, and disease of the tubes in girls might be difficult.

Dr. Jacobi said that the laxative treatment in perityphlitis was, in his opinion, superior to opium treatment; the presence of a laxative in the intestine would assuredly do less harm than the presence of fecal matter. He remarked that authorities differ totally with regard to the treatment in perityphlitis. He remembered one case in which life was saved by not interfering in a period of collapse, and operating two weeks later. Perityphlitis is seldom primary; children may have many attacks and recover. It is impossible to make rules for all cases, and it is safe to wait a reasonable time before operating. Subacute and chronic peritonitis are common, and should receive attention in practice.

Dr. Wendt spoke of injudicious interference in perityphlitis, and of the difficulty of formulating general rules for surgical treatment.

Dr. Wiener said that nine cases had come under his observation; of the six operated upon, five were children. An operation was indicated by a sudden increase in symptoms. He preferred the opium treatment, gave enemata, and incised if he found pus.

Dr. O'Dwyer read a paper on

PULMONARY ATELECTASIS.

In fatal cases of croup he had always found atelectasis associated with inflammatory infiltration of the alveoli. Collapse begins when inspiratory power is diminished from mechanical obstruction or feeble inspiratory muscles. The air pressure within the lung plus normal adhesion of pleural surfaces is greater than external atmospheric pressure. When a renewal of air is prevented, the residual air is absorbed. Every atelectatic lung is also a congested lung. As regards treatment of atelectasis in infants, he had found the momentary closure of the mouth and nose of service, and had devised an instrument for direct inflation through the larynx, the instrument acting as a catheter and larynx tampon at the same time. In conclusion, Dr. O'Dwyer requested a discussion on two points, viz: 1. Is atelectasis, uncomplicated with inflammatory changes in the alveoli, ever found in fatal cases of croup? 2. By what force is a collapsed lung inflated when freely exposed to the atmospheric pressure through an opening in the pleural cavity (*e.g.*, empyema)?

Dr. Northrup opened the discussion by stating that classical atelectasis does not admit of an inflammatory definition. He had examined many lungs microscopically, and had never found a pure atelectasis in descending croup. Usually there was distinct evidence of capillary bronchitis and broncho-pneumonia, probably caused by insufflation.

Dr. E. C. Wendt stated that in the cases under consideration he had always found inflammatory changes in the collapsed lung tissue, and that inflammation followed atelectasis. Moreover, a collapsed lung does not always expand, and if it did in the presence of an opening in the thorax, such an inflation might be favored by a valve-like opening which would interfere with free atmospheric pressure.

Dr. H. Jacobi remarked that lobular atelectasis was the first stage in pulmonary collapse. Rarefaction of air and a viscid, mucous catarrh being frequent causes of atelectasis, innervation might also be lost. He was not prepared at the moment to give a definite answer to the second question.

Dr. Carr suggested that expansion of a collapsed lung was probably favored by inflammatory adhesions.

Dr. Caillé remarked that we have two forms, the obstruction and the compression atelectasis. In the former inflammatory changes are found in the alveoli as a rule, and, according to recent research, the act of coughing may force bronchial secretion into the finer air-passages, and finally into the alveoli. In compression atelectasis inflammatory changes are not found, if the compressing liquid be removed in good time. When this is neglected we frequently observe that a collapsed lung does not inflate after late removal of the compressing cause. With regard to the force necessary to inflate a collapsed lung, he would state that in a case of double empyema following typhoid fever, which had recently come under his observation, he had incised and drained the thorax on both sides. The external atmosphere had free access to both sides of the thorax, but probably owing to adhesions the external pressure on a limited surface was not sufficient to overcome natural inspiratory action; thus the collapsed portions of the lung became inflated, and the patient—who finally made a complete recovery—could, by placing a whistle in his mouth, produce a whistling sound by inspiratory effort.

Dr. O'Dwyer closed the discussion by stating that with regard to the second question he could not accept the explanations which had been offered. In his opinion, the affinity of the hæmoglobin of the blood for oxygen

in a congested and collapsed lung was the true inflating power.

Stated Meeting, February 15, 1889.

A. B. JUDSON, M.D., CHAIRMAN.

DR. LEWIS H. SAYRE presented a case which was of interest on account of

DISEASE OF THE HIP AND KNEE IN THE SAME LIMB.

The boy, aged six years, three years ago had scarlet fever, which resulted in an otorrhœa. Some time afterward he was noticed to have disease of the right hip-joint, which was treated by rest in bed for two or three months, and afterward by traction apparatus. According to his parents, he apparently recovered in about nine months, with almost perfect motion. The instrument was then removed, and he was allowed to run about. The disease was redeveloped in the hip, and during this time he had acute synovitis in both knee-joints, which was treated by rest and plaster-of-Paris. The left knee has entirely recovered. When first seen, two months ago, the right knee was flexed to 140°, subluxated, and presented the usual deformity of chronic knee-joint disease, with excessive tenderness over the internal and external coronary ligaments. The right thigh was flexed on the pelvis and abducted, there was considerable muscular spasm, and he presented all the evidences of disease of the hip-joint, with the second stage pretty well advanced. He was treated first by rest in bed, with extension made in three directions, viz.: (1) on the thigh in the line of the deformity of the hip; (2) in the axis of the leg; and (3) just below the head of the tibia, to draw it forward and decrease the angle. Now the flexion at the hip has almost disappeared, and that at the knee is much improved. The question arose, How to construct an apparatus which would allow the boy to get around, and make traction at the same time upon both the hip- and knee-joints? He had had an instrument constructed, consisting of his father's ordinary knee-extension splint, with an extension piece under the foot, and supplemented by a pelvic belt and a ratchet-bar like that used in the ordinary extension apparatus for the hip-joint. It is applied with plasters above and below, to fix the knee-joint, and extension is made on this joint by a ratchet, as in the ordinary hip-splint. So far, the case has done extremely well with this apparatus. He presented him partly as a curiosity, and partly to get suggestions for improving the mode of applying the apparatus.

DR. A. B. JUDSON was reminded of Dr. Hilton's apparatus mentioned in his book on *Rest and Pain*. He had amputated the knee, and the patient recovered rapidly from the hip disease. Hilton explains this by saying that the amputation above the knee enabled the muscles to keep at rest, or, as he puts it: "In fact, I may say, the hip-joint was cured by cutting off the leg."

DR. N. M. SHAFFER had a case with disease of the hip, knee, and ankle, all on the one side. He first put on a modification of Dr. Taylor's Dows' instrument, supplementing it with a lateral bar on the inside, and an adjustable knee-joint, so that the joint could be placed at any angle desired. The instrument was placed inside the shoe, and a traction rod below the knee. He finally put on an apparatus which made traction on the hip, knee, and ankle, at the same time. The patient entirely recovered. The advantage of having an adjustable knee-joint is, that one can place the instrument so as to correspond with the exact angle at the knee. With a traction rod above and below the knee, and adhesive plaster independently connected with each traction point, one can get very excellent results.

DR. A. M. PHELPS said that the apparatus seemed to fix the knee-joint to a certain extent, but he would suspect a little giving at the knee, or flexion at the hip, from the movement of walking. He had usually employed an instrument similar to the one used by Dr. L. A. Sayre in connection with a hip splint but not attached to it; when the patient stepped it allowed the knee to move up and down, but there would be no motion at the knee-joint. A later report on the case presented would be interesting, with reference to the question of relapse.

DR. H. L. TAYLOR read a paper on the

PREVENTION AND TREATMENT OF CRURAL ADDUCTION.

(See page 315.)

DR. GIBNEY asked whether the motion in the hip which was present when the case first presented itself, was progressive or not, because the statistics of Drs. Shaffer and Lovett showed that the amount of motion did not increase after the cure of hip-joint disease. Dr. Taylor's case seemed to have had considerable increase in the motion from the time when it was pronounced cured.

DR. TAYLOR replied that the patient was thirty-five years old now, and had had the disease since she was nine years of age, so that the early history of the case was necessarily rather obscure. She was twenty years old when she first came to the New York Orthopædic Dispensary, and when Dr. C. Fayette Taylor resigned she followed him, and continued under his treatment. She came to the dispensary in the condition mentioned, and all that he knew was that since then she has been well for several years, with an amount of motion which, so far as he could estimate, had remained practically unchanged.

DR. SHAFFER was especially interested in the study of the muscular relations of these conditions, to which attention had been called, and wished to speak especially on that point. He did not know why we have adduction when we suppose our cases to be cured. When Dr. Lovett and he were studying the cases they reported, he was struck by the fact that cases supposed to be cured, and who left the dispensary in pretty good condition, with a tolerably straight limb, without much adduction, after eight or ten years' release from active treatment, would show on examination not only an increased adduction, but also lessened mobility; and the question presented itself to them whether the cases really were cured when discharged. He has come to believe that adduction occurs only in cases where there is a condition of disease which has not been absolutely cured. These cases were, of course, dispensary patients, but they were discharged as cured only after being studied for perhaps two or three years. He pursues the same lines of treatment as Dr. Taylor has mentioned, when he can properly control the conditions of treatment, his apparatus being based on the same general principles; but he thinks the apparatus should represent more distinctly the element of traction than is done in the excellent instruments presented for

examination. The question he especially emphasizes, is that as a result of study and experience we discharge our cases when there is tolerably good motion, and perhaps only a very slight degree of adduction or of rotation, and the case is regarded as cured. Such cases ten years later show lessened mobility and increased adduction. The muscular expression in these cases is very important, and enables us to make our diagnosis in hip disease long before we have deformity; and so he felt that in the cure of hip disease we should regard the muscular signs and the tendency to adduction as showing that protective treatment has not been pursued long enough. He asked whether the sign of adduction, after a supposed cure, should be regarded as a sign that there is an irritation or some lingering disease which gives, so to speak, a reflex contraction of the muscles, corresponding to that observed in the earlier stages of the disease.

Dr. Phelps thought that Dr. Shaffer was correct in saying that the muscles indicate the condition of the joint. There is a condition in the joint or about it, usually in the bone, which causes the reflex spasm. Why do we treat the spasm alone? It is only a symptom of the disease within the joint. In the treatment of adduction we should aim to immobilize the joint, to control inflammatory action in the joint, to control intra-articular pressure; and when this is done, we will not have muscular spasm. Any splint which will increase the intra-articular pressure is a wrong splint, and many of them do this. The armamentarium presented is highly ingenious; but more than fifteen years ago Dr. Sayre taught us, if we put these cases in bed and apply the long splint to the well leg with extension to the diseased one we relieve spasm and overcome deformity. He believed that is entirely correct. At the Post-Graduate Hospital, where he has a number of cases now, he has treated them in this manner, and when the muscles fail to yield he does not hesitate to cut them, and overcome the deformity. He then puts the limb in proper position, so that when he makes extension the muscles are not used as a fulcrum and the limb as a lever, thereby producing intra-articular pressure, which he believes to be one element of destruction in hip-joint disease. Extension is made in a line corresponding to the axis of the neck. It is well in the case of children to put them in some fixative apparatus, such as the cuirass or portable bed; but, in any case, keep the joint absolutely immobilized. After this period has passed, by using a modification of the long traction splint we prevent crural adduction, flexion, and many of the abscesses which follow, and put our patients under the most favorable circumstances for cure. Intra-articular pressure is thus relieved, and Nature will take care of such a case if she can do it at all. These expensive instruments are not available among the poorer classes, neither do they fulfil all the requirements in the management of these deformities when disease is frequent.

Dr. Shaffer thought that Dr. Davis ought to have the credit for making the original statement that we should not use the muscles as a fulcrum so as to increase the pressure in the joint. In his book he says: "When the extension force is used, do not use the bone as a lever, prying over the fulcrum (contracted muscles), forcing the head of the bone up into the acetabulum." That was written in 1867, and, so far as he knew, was the first positive statement regarding the incorrect principle of applying traction in the wrong line, and showing the reasons why we should not do it. With all due deference to Dr. Sayre, it seemed to him that Dr. Davis ought not to be forgotten, for he believed he was the first one to bring it prominently before the profession.

Dr. Phelps objected to this on the ground that Dr. Davis did not tell us how to do it.

Dr. John Ridlon thought that the position taken by Dr. Phelps was one of considerable importance—that it should be our aim to prevent this deformity of adduction as well as to cure it when the cases from somebody else come to us with it. He was very glad that Dr. Taylor so frankly brought the matter forward, and stated that the *majority* of these cases treated by traction with portative apparatus do get well with flexion and adduction. When a patient comes to us with flexion or adduction, the particular method of treatment adopted will depend upon whether it is cured or not. If it be cured, and the adductor muscles are shortened and not in spasm, and the leg is shortened from shortened adductor muscles, and not from spasm, he saw no reason why those adductor muscles should be stretched rather than divided. If the case be not cured, and the adduction be due to muscular spasm, then we should treat the joint disease rather than try to relieve the adduction; and upon that comes up the question whether traction in any line is advantageous or is harmless in a case of hip disease with adduction.

It seemed to him that traction upon a leg in a patient whose adductor muscles are in spasm does produce some pressure at the point of the disease in the bone, whether intra-articular or extra-articular. He did not think, however, that we are perfeetly unanimous as to whether that pressure is harmful or not. If the adductor muscles are in spasm, let us go to work deliberately and rationally, and endeavor to treat the case just as we would if we saw the case for the first time in the earlier stages of hip disease. Just so long as any muscle or group of muscles is in spasm, and which, if left to itself, will produce deformity in any line, that joint, as a joint, should be kept in perfect rest; there should be absence of motion and absence of pressure, whether from superincumbent weight or muscular spasm; and if the deformity is due to muscular spasm, he had no question in his own mind that the deformity will be relieved so soon as the disease is cured.

Dr. Shaffer thought we were not justified, if we have reflex muscular contraction, in dividing muscles which would yield under ether, simply on the principle that we assume that it is reflex contraction. After being divided, the trouble recurs as soon as union has taken place; at least, he had seen such cases.

Dr. Phelps, in answer to a question from Dr. Shaffer, as to what was his rule in dividing muscles, said: Any muscle which can be stretched under ether, or which by extension for a short time will allow the deformity to be overcome, he should not think of dividing; but if, in a case of hip-joint disease of one or two years' duration, the tensor vaginæ femoris, the fascia lata, and the adductors were tense and would not yield to force under ether, he would cut these tissues. He could do it with perfect safety, and pull the limb down straight, and then put on proper retaining apparatus.

Dr. Judson said that the question, "What determines the direction of the limb in the deformity of hip disease?" was one of considerable interest. Why should one patient

present abduction and another adduction, and why does one patient have extreme, and another one moderate flexion?

It appeared to him probable that the limb, as a rule, assumes that position which the patient finds most habitually comfortable and convenient. If, for instance, the patient finds that with the limb in a certain position he is able to avoid inadvertent motions and accidental concussions, the limb will be found in that position. If he is in bed for a long time with a painful joint, the position will be extreme flexion and adduction, because the painful joint is thus made easy. The choice is not so much the result of deliberate experiment and deduction, as the result of instinctive and reflex action. If these views are correct, it ought not to require much force to reduce the deformity in the acute stage; and he had no doubt that it is common to see the deformity of the early stages taking different directions and degrees from time to time in a given patient. The simplest methods sometimes suffice to effect a change. For instance, the long hip splint, even if it had no other function, would be useful, because it combats extreme flexion of the thigh by keeping the knee straight, extreme flexion of the thigh being impossible unless the hamstrings are relaxed by flexion of the knee. He recalled the case of a patient in whom the traction of the hip splint, the patient being in bed, converted marked adduction into marked abduction, which in turn was reduced by the unconscious action of the patient when he began to walk, still wearing the hip splint. But this tractable condition of the joint is, of course, found only in the early or acute stage of the disease. In time, structural changes take place, and compel a resort to force. The correction of adduction caused by structurally shortened muscles and ligaments, is a very difficult but by no means impossible thing. The apparatus shown and explained for effecting this object by the use of the rack and pinion, with pressure applied to the os innominatum of the opposite side, appears to be nearly perfect as a mechanical device, and accomplishes the object intended.

DR. TAYLOR, in closing the discussion, said that the paper was on the subject of adduction, and not on the treatment of hip disease, which is a very much broader subject, and that the earlier forms of adduction from reflex muscular spasm required nothing more than the proper traction treatment. He gave two or three classes of cases in which the treatment of adduction would be different, according to the stage of the disease, and he especially emphasized—and that was the object of the paper—the treatment of adduction in old cases who had had hip disease and returned for treatment ten to thirty years after the deformity had occurred. In these cases there was structural shortening of the muscles, connective tissue, and ligaments, and in many of them there were very firm adhesions in the joint. The plan of treatment which he recommended is applicable especially to such cases, whether due to hip disease or any of the other conditions mentioned. He did not wish anybody to infer that one must have all this paraphernalia in order to get on in the earlier stages of the disease. He was quoted as saying that the majority of cases properly treated with traction, get well with adduction. What he did say was, that the majority of cases one sees on the street have been cured with adducted thighs. He was far from thinking that those patients were treated by what he would call properly applied traction. On the contrary, adduction can nearly always be avoided where one can get the co-operation of the patient, and after it has occurred, it is nearly always susceptible of cure by proper mechanical means, no matter how long after its occurrence the patient comes under treatment.

He was the last one to advocate symptomatic treatment in hip disease. Our whole plan of treatment is based on thorough and prolonged protection of the joint, and under this plan deformity and other severe complications are much less common than under less thorough methods.

CORRESPONDENCE.

AUTOMATIC AMBULATION.

To the Editor of THE MEDICAL NEWS,

SIR: During a visit to Paris, a few days since, I saw the following very extraordinary case brought into his clinic at the Salpêtrière by Charcot, and described by him to be a case of "l'automotisme ambulatoire."

The patient, a man of, perhaps, forty-five, had been for nineteen years a bookkeeper in a merchant's counting-house, and had always enjoyed the utmost trust and confidence of his employer, who retired a year ago from his business, which went into other hands, the old bookkeeper remaining, however, in his confidential position. When brought into the clinic the patient, to all appearances, was perfectly healthy and sane, giving the history of his trouble clearly and in detail; explaining that he had from time to time suffered from lapse of consciousness; that during these periods he seemed perfectly rational to those about him, but to himself the time was a blank, and that these periods had lasted from a few hours to several days. The history of these *absences* were as follows;

The first, it seems, came upon him in the year 1887, as he left the counting-house on some errand to the Rue de Villiere, Paris. He went his way, but lost all idea of time and place, and finally came to himself late in the evening in the Place de la Concorde, having wandered for fourteen hours. When he came to himself, he found he had the same amount of money in his pocket as in the early morning. It was plain that he had taken nothing to eat or drink during these fourteen hours.

His second attack was during the spring of 1887, when he lost all consciousness for *forty-two* hours, and awoke in the Seine, having jumped from his coupé. He was, fortunately, rescued by a policeman. It seemed that after his unconscious peregrinations he had taken a ticket upon the Railroad de Ceinture, and having passed the station where he evidently intended to get out, he had at the above time rushed from his coupé into the river. The shock of the cold water brought him again to consciousness.

A third time, in August, 1887, just as he was about to enter his own house, after business hours, he had a sudden attack of his malady, and only awoke from his living sleep after fifty-three hours, on the Pont d'Ansières, having been in fact aroused by a fisherman on the bridge, who, seeing him peering intently into the water, asked him, "What are you doing here so early?" He found himself covered with mud, and his shoes completely worn out; he had evidently been walking without interruption for nearly three days, and without food or drink.

After this last attack, recognizing that they were becoming not only more frequent but of longer duration, he consulted Charcot. The professor put him on a course of treatment, and also gave him a certificate stating that the bearer was subject to these attacks of "automatic ambulation," as he called them, and which the poor patient always carried in his pocket.

Under Charcot's handling the attacks disappeared, and all treatment was stopped. In February of this year, however, as he left one morning his place of business to make a deposit, with some 700 francs on his person, he again lost all consciousness, to awake *eight* days later, to find himself on a bridge in a strange city, which turned out to be Brest. Upon this occasion it seems that the loud music from a military band in passing close to him had called him to consciousness. Fearing himself, the poor man approached a gendarme, and told him briefly his story, adding that when he left home he had 700 francs, whereas at present he had but 500, and showing the man the certificate of Dr. Charcot. The stupid man did not, of course, understand, arrested the poor devil as a thief, or what not, and threw him into the lock-up, from which place he was finally rescued by a telegram from Professor Charcot. Since this last attack he is again under regular treatment.

This peculiar and interesting form of disease Charcot has named "l'automotisme ambulatoire," a malady in which the sufferer comes and goes, and is apparently in perfect possession of all his faculties, and yet to the man himself his every action is unknown. The writer knows of no parallel case, though he has seen almost exactly the same symptoms caused by liquor. In this latter case the man was absolutely sober, to all appearance, and perfectly rational, free from all and any of the usual effects of alcohol, and yet later he remembered nothing whatever that had passed. His friends recognized the extremely peculiar effect wine had upon him, and had always watched him most carefully.

An interesting study has lately been published in Munich on what we know as "roaring" in horses. This peculiar form of apparent dyspnœa is, it seems, caused by a paralysis of the abductor muscles of the larynx, the posterior crico-arytenoid on one side. I shall obtain a copy of the paper in Munich, and write more fully then about it.

Respectfully yours,

F. DONALDSON, JR.

STUTTGART, March 2, 1889.

BOVINE TUBERCULOSIS.

THE consideration of some plan by which the alleged injurious consequences that may result from tuberculosis in animals can be averted has recently engaged the attention of the College of Physicians of Philadelphia. If all the allegations regarding the communicability of tubercular disease to the human species by means of infected milk or flesh, are to be accepted as true, they may well excite great disquietude and even alarm. If the recommendations which were presented should be carried out, and the official inspectors proceed to execute their functions in strictest conformity to a proposed law that might condemn all animals affected with tubercular disease, the slaughter would be simply enormous, and perhaps unnecessary. On the assumption that all flesh and milk of tubercular animals are dangerous to partake of, on the other hand, there would be a general abstention from animal food and milk, as well as shrinkage of their money value.

Obviously we cannot afford to sacrifice our herds needlessly, neither should there be unnecessary alarm about the quality of the food on which we are accustomed mainly to rely. It is important therefore to ascertain whether it is practicable for an expert inspector to determine, on examination, the existence of bovine tuberculosis? Is there any liability that the milk may become contaminated during the progress, or in certain stages, of the disease? At what stage of the disease should the animal be destroyed?

During the years 1883 and 1884 an opportunity was afforded of observing an epidemic of tuberculosis which affected the herd of Holstein cows on the farm of the Willard Asylum for the Insane, in the State of New York. An interesting report upon this disease as it here occurred was made by Dr. Blaine, one of the assistant physicians who was detailed for this purpose. Attention was attracted to the herd in 1883, when it was noticed that there were many laggards which lingered behind the herd, that they were losing flesh, and had a rough coat; that they had some difficulty in breathing, and had a slight cough. On making a post-mortem the nature of the disease was discovered. On an official examination made by Prof. James Law, of Cornell University, it was found that the entire herd, numbering about 150, was affected, and on his advice all were killed, not at once, but gradually. Abundant opportunity was thus afforded of making a diagnosis in every case, which was verified by examination after death.

The results demonstrated that it was entirely practicable for an expert to make a correct diagnosis as to the existence of tuberculosis and the successive stages of the disease. The animals were slaughtered after the cervical glands were enlarged and tubercular suppuration commenced. Tubercular deposits were found in the milk bag, and a communication between the points of suppuration and the udder was demonstrated in many instances, showing how the milk might be contaminated. Before the stage of suppuration was established, examination with the lactometer showed that the milk was decidedly deteriorated. The depreciation ranged from thirty to forty per cent. in solid constituents. These facts would further go to show that it is not only practicable but important that an official inspector should have power to examine milk cows kept for dairy purposes and milk supply, and direct the removal and destruction of an animal found in advanced or suppurative stages of tuberculosis, or with a diseased milk bag.

Bovine tuberculosis usually affects the glands, lungs, liver, and organs generally, but the flesh is rarely the seat of deposit.

An examination into the condition of a large number of herds owned by farmers in the vicinity of the Asylum revealed the fact that from twenty-five to thirty per cent. were affected in various degrees, and that the disease more frequently attacked animals that were six years old or beyond that age. The cattle purchased for consumption were procured in Buffalo and brought to the Asylum, where they were slaughtered. They were known as "western cattle," and were about three or four years old. At the Asylum abattoir it was found that these animals were quite exempt from tuberculosis. No cases of active

disease were found; and only occasionally a calcified tubercle was discovered. These examinations showed a decided exemption from disease as compared with animals reared in that part of western New York contiguous to the Willard Asylum, and this fact would be established, we believe, as the result of careful observations in this vicinity.

In the epidemic which we have noticed, it was considered as established that the disease was transmitted by three imported bulls, by contact, and the ingestion of tuberculous matter while the herd was grazing. Although the Asylum community numbered about 2300, and the disease in the herd had existed for some time probably before it attracted serious attention, it was also observed that the annual mortality from phthisis had been steadily declining. J. B. C.

NEWS ITEMS.

The Quarantine Conference, holding its session at Montgomery, Ala., adopted, March 6th, the report of its Committee on Quarantine. The report recommends that the health authorities shall regulate the hauling of persons, baggage, or freight from infected places during yellow fever epidemics, and that the regulations and restrictions shall be such as to afford protection to endangered communities; that at all seasons of the year, and under all circumstances, the simple passage of trains should be allowed, even when carrying sick refugees to other localities, and that well-digested rules to govern quarantines should be prepared, published, and enforced whenever necessary; that only competent physicians who have had experience with yellow fever should be made inspectors of quarantine stations and have power to administer oaths and detain passengers and baggage; that State boards of health should be authorized to enforce quarantine regulations; that quarantine stations at Southern seaports are of great advantage and should be continued; that ticket agents should be required not to sell tickets during the yellow fever epidemics, and that travellers shall be required to have health certificates.—*Boston Med. and Surg. Journal,* March 14, 1889.

Nursing Infants with Asses' Milk.—In recent years, in France, conscientious efforts have been made to ascertain the principal causes of the loss of population, and it has been demonstrated by numerous facts that one of these causes consists in the physical degeneration induced by deficiency of alimentation in infancy; and the most eminent physicians of Paris, and the Director of Public Assistance, have endeavored to modify and improve the system of nutrition in the public charitable institutions, providing for recently born children lactation adequate to the necessities of the temperament and constitution.

In the Hospital for Infants' Diseases, situated in Sabres Street, there exists a section for rickety boys and girls, whose miserable aspect produces an impression of pain upon the mind—unfortunate beings who have inherited the organic vices of their parents, and who suffer from anæmia's cruel tortures.

The administration of the hospital is arranged in two separated pavilions, where there is much ventilation, with large windows that look out upon a garden, and whose walls have double rows of willow cradles perfectly equipped. The newly born receive here the personal care of the establishment, beginning with being weighed in the balance the same day they make their appearance, the operation being frequently repeated, almost every month, in order to determine with exactness the development of the child. The little one is subjected to an especially nutritious diet of the most tonic kind, if it had been previously fed from a refractory goat liable to convey contagious germs, it having been found by experiment that the milk of this animal, although possessing nutritive principles of the most salutary kind, presents the inconvenience of communicating by absorption the effects of those nervous accidents to which the goat is subject.

The public charities of Paris, advised by the wise doctors of medicine, have substituted for the milk of goats that of the ass, and have installed an ample yard near the pavilion of the rickety and scrofulous children, which is only separated by a short, covered passageway. Nothing is more picturesque than the spectacle of the lactation of the babes in this enclosure every morning.

The nurses, dressed in dark gowns with white caps and aprons, each carrying a child on the right arm and a little seat in the left hand, present themselves in exact turn to the women who have charge of the animals, and they hold the child, applying its lips to the teats of the docile animal. The children suck with avidity the liquid nutriment, which is fresh and of agreeable taste.

The Administration of Public Assistance of Paris has calculated that one young ass is able to lactate abundantly for a space of nine or ten months, and when this period has passed they are sold and replaced by others. It is well known that the milk of asses, by its vivifying qualities and nutritious principles, assimilates in a great degree the milk of the nurse, and these disinherited and sick children, enjoying its beneficial effects by its permanent and methodical use, are restored little by little to health and vigor.—*Scientific American,* March 16, 1889, from *La Ilustracion Espanola.*

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 12 TO MARCH 18, 1889.

By direction of the Secretary of War, Jedediah H. Baxter, *Chief Medical Purveyor,* will proceed to New York City on public business connected with the Medical Department, and, on completion thereof, return to his station in this city.—Par. 18, *S. O. 57, A. G. O., Washington,* March 11, 1889.

By direction of the Secretary of War, Robert W. Shufeldt, *Captain and Assistant Surgeon,* having been found incapacitated for active service by an Army Retiring Board, is granted leave of absence until further orders, on account of disability.—Par. 7, *S. O. 56, A. G. O., Washington,* March 9, 1889.

By direction of the Secretary of War, Richard W. Johnson, *Captain and Assistant Surgeon,* is relieved from duty at San Carlos, Arizona, and will report in person to the commanding officer Whipple Barracks, Arizona, for duty at that station.—Par. 15, *S. O. 57, A. G. O., Washington,* March 11, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING MARCH 16, 1889.

Hesler, Frederick A., *Assistant Surgeon.*—Detached from the Naval Hospital, New York, and ordered for examination preliminary to promotion.

Ogden, Frederick N., *Assistant Surgeon.*—Ordered to the Receiving-ship "St. Louis," Navy Yard, League Island.

Bryant, Patrick H., *Assistant Surgeon.*—Detached from the Receiving-ship "St. Louis," and ordered to the Naval Hospital, Chelsea, Massachusetts.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

CÆSAREAN SECTION FOR CANCER OF THE CERVIX.

A Clinical Lecture delivered at the Hospital of the University of Pennsylvania, March 13, 1889.

BY WILLIAM GOODELL, M.D.,
PROFESSOR OF GYNECOLOGY.

GENTLEMEN: I shall to-day perform the operation of Cæsarean section before you, and as I shall not be able to talk much during the operation, I shall say what I have to say while the patient is being etherized.

I am emboldened to do this operation before you for this reason: At the beginning of our course, six months ago, I took a new departure, and up to the present time my son and I have performed abdominal section twenty-three times, either in this amphitheatre or before the ward classes. Of this number we have lost only one from septicæmia, and in that case death was almost a foregone conclusion. It was a desperate case, with rotten pus in both tubes and both ovaries, which were universally adherent and could not be wholly removed. We have had one death from shock in a case of large sarcoma of the womb, removed by supra-vaginal hysterectomy. We have had a third death, but not, however, from the operation. If in this case I had made a complete diagnosis, perhaps I would not have operated. She had mental hebetude, very marked loss of memory, a hesitating speech, and many nerve-symptoms which I thought were hysterical, but which were really due to some obscure cerebro-spinal lesion. She had severe groin-aches and painful locomotion, which were, and I think correctly, referred to very marked disease of the uterine appendages. I removed the ovaries and tubes, which were enlarged, adherent, and contained pus. The patient recovered from the operation, and did very well for over two weeks, then paresis set in, followed by loss of control over the sphincters, and she died in the fourth week. An autopsy was not permitted, and I am therefore left in doubt as to the character of the brain lesion, but I think it was the result of specific disease. These are all the fatal cases that we have had, and only one can be laid to blood-poisoning.

The patient on whom I shall operate to-day is a white woman, aged thirty-two years. She married when a little over fourteen years of age, and has had eight children and four miscarriages, the last one of twins. In February of last year she found that she was losing blood per vaginam, but neglected to have anything done until some months later. When she came under observation, it was found that she had advanced cancer of the cervix. This was curetted and burned with the actual cautery by my son in October last. Since then the hemorrhages have ceased until very recently. At the time of the curetting she was pregnant. but the condition escaped recognition until two weeks later, when the movements of the child were felt by her. We have had to depend upon the sign of quickening in determining the age of the fœtus, and, according to my calculation, it is within two weeks of the full nine months; but this is a rough and untrustworthy datum.

This operation is necessary because the cervix is hardened and thickened by dense masses of cancer, and is firmly fused to bladder and rectum. In all probability it would be impossible for the cervix to dilate sufficiently to allow the passage of a living child. The result would undoubtedly be death to the child and death to the mother. So we are driven to the operation to save the life of the child and to prolong that of the mother.

I think it wisest to do the operation before the period of gestation is fully completed, for then we can choose our own time, and besides that, her hemorrhages have started up again, which will weaken her. The only objection is, that the canalization of the cervix caused by labor has not, of course, taken place. It is important that the cervical canal should be somewhat dilated, in order to afford an avenue of escape for the lochial discharges. After completing the operation, I shall do this artificially, using, if necessary, my uterine dilators.

According to my diagnosis, we have here a breech presentation with the back of the child to the right. I hear the fœtal heart sounds very plainly on the right side. I do not understand how it is that I hear them so distinctly with the right side of the child uppermost.

The patient has shown a good deal of pluck in looking forward to this operation. This is mainly due to the fact that she has been in the hospital for a couple of months, and has had an opportunity of seeing a number of cases of abdominal section for large tumors followed by recovery. She has made one stipulation, that I should baptize the child as soon as it is born. I wish to say one word here in this relation: Always respect the religious tenets of your patients, no matter what your own may be. So I make it an inflexible rule to ask a woman in labor, whom I may be attending, whether she wishes me to baptize the infant if its life is in danger, and I always accede to her wishes. Our patient has given me two names. If it turns out a boy, it is to be named Owen; if a girl, Sarah Agnes.

What are the statistics of this operation? The old Cæsarean section was a very dangerous operation, the great majority of cases perishing. This was largely due to the fact that the operation was delayed too long, until time, ergot, and the forceps had been tried. When antisepsis was used, and the operation was undertaken a short time after labor set in, the results were better, although the mortality still remained very high until Sänger, of Leipsic, suggested a method of operating, since which the success has been marvellously improved. Dr. Harris, who has honored us by his presence to-day, and who is one of our most accurate and

best statisticians, tells me that there have been performed 163 cases of the Sänger operation, with 45 deaths. In this country the statistics are not so favorable, there having been 26 cases with 16 deaths. One reason that the Sänger operation is more successful than the old Cæsarean section, is because two sets of sutures are put in, bringing the uterine walls and the edges of the peritoneum into close contact. This formerly was not done. Another reason for the present success is, that we now recognize the great importance of aseptic and antiseptic precautions. In closing the incision through the uterine wall I shall employ two sets of sutures. First, a set of deep sutures introduced about half an inch from the edge of the wound and passing down to the mucosa but not penetrating it. The object of not going through the mucous membrane is of course to avoid the passage of septic material from the uterine cavity to the peritoneal cavity through the suture opening. In tying the deep sutures I shall take care to invert the serous covering of the uterus so as to secure close coaptation. This will also be favored by the second set of stitches consisting of the Lembert suture superficially applied. In this way we get that perfect union which is essential to success.

We have prepared the patient and instruments with scrupulous care to avoid the introduction of septic matter, and I shall now proceed with the operation, making an incision from above the umbilicus to near the pubes, controlling hemorrhage by hemostatic forceps. I next open the peritoneum and at once come upon the uterus. There are two ways by which we may now proceed. In the first place, we may open the uterus *in situ*, the abdominal walls being closely pressed against the uterus to prevent the entrance of fluids into the peritoneal cavity. The child is then removed and the uterus brought through the abdominal incision. In the second method, the uterus is brought through the abdominal wound and then opened outside of the body. I shall adopt the former plan as it will not need so long an abdominal incision.

The uterus was then opened, an incision of about five inches being made. The escape of the liquor amnii was accompanied by the protrusion of the right arm of the child, which, as had been diagnosticated, presented by the breech. The head was in the left hypochondriac region and the back of the child toward the right. The head was brought to the uterine opening and delivered, the rest of the body following without difficulty. The cord was compressed with hemostatic forceps and cut. The child (a male) was then given to Dr. Barton Cooke Hirst and in a few minutes was crying lustily.

The uterus was next brought outside of the abdomen and the peritoneal cavity packed with sponges. The left ovary and tube were seen attached to the uterus. A rubber tube was secured around the cervix and the placenta gently detached and removed. A sponge was placed temporarily in the uterine cavity and the deep sutures, fourteen in number, inserted. The sponge was then removed and the deep sutures tied. The superficial sutures, consisting of seventeen Lembert sutures, were passed through the peritoneal coat. As a precautionary measure the peritoneal cavity was irrigated with warm boiled water. The abdominal incision was then closed in the ordinary manner, the umbilicus being excised to facilitate approximation of the wound, and sufficient of the tendon was included in the sutures to insure a firm cicatrix. The wound was dressed with fifty per cent. iodoform gauze, over which were placed ordinary gauze and cotton which had been baked in an oven.

Dr. Goodell then continued: You might ask me why I did not do a Porro operation. The Porro operation is somewhat less successful than the Sänger, and as the ordinary Porro is nothing more than a supra-vaginal hysterectomy, it would not have removed the diseased tissue. If there had been any possibility of removing all of the cancer by hysterectomy, I should have performed this operation in preference to the Sänger operation. The disease is, however, so extensive, both the bladder and rectum being involved although not yet perforated, and the tissues are so matted together, that there would have been no possibility of accomplishing a radical cure.

In this case we employed chloroform as the anæsthetic, for when we have pressure on the respiratory organs and kidneys, by a tumor of any kind—and the pregnant womb is a tumor—I prefer to use chloroform. I use it altogether in the laparotomies at my private hospital. The apparatus which I employ is a very safe one, as the patient gets only a minim of chloroform at each compression of the bellows. Sometimes after the administration of ether, the kidneys becoming acutely congested refuse to work and I have had patients die from uræmic coma from suppression of the urine. Then again I have seen fatal œdema of the lungs follow its use in old people. Chloroform does not have such an injurious effect upon the kidneys or the lungs. Whenever albumin is found in the urine, no matter what the operation, I should always give chloroform in preference to ether. Also in the aged I should prefer the former anæsthetic.

I shall next pass my finger into the vagina and determine the condition of the cervix. The easiest plan would have been to open the cervix from above, but I feared that my finger would become contaminated by the cancerous juices, although the vagina had been thoroughly syringed with a 1 : 1000 corrosive sublimate solution. I find, however, that, owing to the curetting performed by my son, the finger readily enters the cervical canal so that there is a free avenue for the escape of the lochia.

I sincerely trust that this patient will recover. She deserves it, she has plenty of pluck, she is in as good a condition as a person with a cancer can be, and I think that the operation was performed under strict antisepsis. The only criticism that I have to make is in regard to the delivery of the child by the head. Delivery was accomplished more quickly in that way, but I might have been able to get the child out through a smaller opening had I turned and delivered by the feet. This, however, would have compelled the introduction of the whole hand deeply into the lower segment of the womb, where the breech lay, so I seized that portion of the body which was handiest.

To insure contraction of the womb, after the lecture was over a hypodermatic syringeful of fluid extract of ergot was injected into the thigh on its outer aspect.

NOTE.—*March 26th.* To-day, the thirteenth after the operation, this woman appears virtually out of danger. She eats and sleeps well, and has a full breast of milk. The infant is also thriving.

ORIGINAL ARTICLES.

ELECTRICITY AS A THERAPEUTIC AGENT.[1]

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IN the management of a business concern the results of taking account of stock and of balancing the books is rightly considered of supreme importance. Perhaps it might be of advantage to us as practitioners if the results of our work could be occasionally reckoned up in a similar manner, and a definite estimate made of the value of our methods. It is in pursuance of this idea that electricity as a therapeutic agent is brought before you for discussion to-night. Over a hundred years ago it was introduced into medical practice. Since that time it has met with varying degrees of favor. Twenty years since, under the impetus of German influence, its use in nervous affections was firmly established. Yet recent writings and text-books on the medical use of electricity show a disregard of recent advances in the knowledge of the physics of this agent. And it needs very little study to convince one that the modern view of electricity differs widely from the older views reproduced in medical literature. To follow them closely would lead one to consider electricity as an entity, possibly a fluid, which can be administered like a drug. The term "current" is partly responsible for this fallacy, it being difficult to deal with this term without imagining a flow of something in a definite direction. Yet just as the older term caloric is now discarded, and the old notion that "heat is the result of caloric being poured into a body" raises a smile, so similar fallacious notions regarding electricity should at present meet with disapproval.

The sooner it is realized that electricity, like heat and light, is merely a form of activity in matter, and the sooner the term "electrical currents" gives place to the more accurate phrase *state of electrification*, the sooner will the mystery surrounding this agent be cleared away.

When electricity is applied to the body a change is produced in the normal condition of the molecules making up the body, a new molecular condition is produced, but nothing is added to or subtracted from the body itself.

Between the two poles of the battery this molecular state is more intense than elsewhere, and under one pole it is somewhat different from that under the other. The intensity of the change is measured roughly in terms of the strength of its pull upon a balanced needle—but this should not lead to the adoption of such terms as a dosage of electricity, which, like the term current, is sure to mislead.

When electricity is thus regarded as a mode of energy capable of estimation, like other modes, in terms of work, it becomes evident that a valuation of the various forms under which this energy appears is possible.

In common usage these forms are static or frictional electricity, voltaic electricity or galvanism, and induced electricity or faradism. It should be distinctly understood that all these forms are really the same mode of energy displayed under varying conditions. An illustration may make this plain. Suppose that you have a dry sponge and a tumbler of water. If you throw the water over the sponge the greater part of it will run off, leaving only the surface of the sponge wet. You have applied a quantity at once, and your effect is short and soon over. Suppose, on the other hand, you let the water fall on the sponge drop by drop. It will soak in and wet it thoroughly but gradually, until in the end all the water will remain in the sponge, which is now soaking. The effect is slow but intense. Water and sponge are the same in both cases. The conditions vary under which they are brought together.

This illustration, which is not to be taken literally, may convey some notion of the difference between static and voltaic electricity. By the former sudden transient effects are produced very limited in intensity. By the latter, slow permanent effects are produced of much intensity.

I. STATIC ELECTRICITY.—It seems strange, when the history of the uses of electricity is reviewed, to find how much credence is still placed in the effects of frictional electricity. In the first place, the change of electrical state produced by it is limited exclusively to the surface of bodies charged. Take a metal ball insulated by a glass stand over which two hemispheres are fitted, and charge this with static electricity. If the hemispheres be now removed from the surface, they are found to carry all the electrical charge, and no change of electrical state has been produced in the metal ball beneath them. There is absolutely no proof that the human body acts in any way differently from the metal ball. Any effects obtained by static electricity must, therefore, be from surface stimulation; and, hence, wholly reflex and indirect in character. For this form of electricity does not penetrate the skin.

When the surface of a body is charged with static electricity, it discharges itself gradually into the air by diffusion, or directly into the ground if the body be not insulated. The human body cannot be permanently charged with electricity. The state of electrification on the surface of the body is communicated to the air about, which is thus put in a similar electrical state. But bodies in a like state

[1] Read before the New York Academy of Medicine, March 21, 1889.

of electrification repel one another. Hence the hair, when charged, is repelled from the body, and stands on end; air, when charged by diffusion, moves away from the body, and the air in motion is felt as a breeze; hence, when a person is charged with static electricity this breeze may be felt. There is no more virtue or curative property in an electrical breeze than in any ordinary draught of air. Hence, it is ludicrous to read of the beneficial effects ascribed to the electrical breeze.

If all effects of static electricity are reflex in their nature, due to irritation of the skin, then the agent differs in no respect from any mild form of counter-irritation—such as whipping with twigs, lomi lomi of the Sandwich Islanders, the needle douche of a Turkish bath—excepting, possibly, in the convenience of application. Stimulation of the circulation, contraction of muscles as from a blow, agreeable sensations, or sharp pain, may all be produced in such a reflex manner, if they are considered desirable. But no further distinctly curative effects can be admitted. And as we shall see later, the same effects can be secured by faradism.

I pass by the mental effects induced by any exaggerated idea of the mysterious power of electric sparks, as beneath our notice. The elements of mystery and of expectant attention doubtless play a part in the treatment of some functional nervous affections. It is an open question how far they may be legitimately employed. If static electricity relieves hysterical affections, it must be admitted that it is entirely by means of the mental effect produced.

II. VOLTAIC ELECTRICITY OR GALVANISM.—A frictional machine does all its work suddenly, in a fraction of a second. It is not capable of producing a constant electro-motive force. This can, however, be obtained from a galvanic battery; and very soon after the discovery by Volta, the use of static electricity was superseded in medicine by that of galvanism. The fact that a voltaic battery furnishes a definite amount of electro-motive force capable of doing a measurable amount of work and producing definite effects on the body suffices to explain its continued use. Yet, when we speak of definite effects from galvanism, I think there are few physicians to be found who will contend for a moment that there is any such certainty regarding the therapeutic effects on the body as there is regarding the use of drugs. Opium will quiet pain; aconite will depress the heart. Is there any statement which can be made with equal definiteness regarding electricity? I think not.

As far as the effects of galvanism are now known, they may be classified under three distinct heads, viz., catalytic, cataphoric, and electro-tonic effects.

a. Catalytic effects. The splitting up of a compound element into its constituent parts is one of the ways in which the work done by electricity is measured. The compound body is put into a state of electrification which makes the condition of its molecules so unstable that they fly apart, and as they burst asunder those which have taken on a state like that of one pole of the battery are repelled from it and appear at the opposite pole. A strong current passing through the body produces intense catalytic effects, disintegrating and destroying the tissues, and raising blisters under each pole, the one containing acid, and the other an alkaline fluid. Even with a weak current the taste produced in the mouth differs at the different poles, one being sour, the other salty. There is no doubt, then, that marked chemical changes may be produced by the galvanic current.

This power, then, may be used like that of any other destructive agent, to dissolve body tissues. In some cases—such as elimination of hairs from the face—it is convenient. How successful it may prove in the destruction of tumors—especially of the internal organs—it is hardly time to judge. In the resolution of strictures its use is strongly combated by eminent authority after thorough trial. In any case the difficulty of limiting its action, the serious nature of the wound which is left, the slow healing and deep scars which remain, combine to make it less certain, less definite, less satisfactory than ordinary surgical procedures—and, consequently, it is not endorsed by surgeons generally.

The use of mild, non-destructive currents has been urged by some, and it has been claimed that a catalytic effect of a moderate kind may aid nutrition. Nutritive processes are dependent on chemical and molecular changes. Is it possible to stimulate these by a constant galvanic current? Theory here is aside from the point. Experience must furnish facts. The only scientific observation which I have been able to find is furnished by Prof. James K. Thacher, of Yale, and it is certainly extremely valuable and interesting. In a case of bilateral paralysis of all the extremities, due to diphtheritic multiple neuritis, Dr. Thacher made a series of therapeutic experiments upon the arms—each arm being treated alone for a week at a time, and its relative gain under treatment being compared with that of the opposite untreated arm. The results were measured in degrees of strength of grip as determined by a dynamometer.

It was found that the arm to which a labile constant galvanic current was applied daily for ten minutes, gained in strength in a degree far greater than that of the untreated arm. So that the gain under galvanism could be exhibited as follows:

	Galvanized arm.	Untreated arm
1. Ten days' treatment to left arm	17° gain	12° gain.
2. Seven " " to right "	15° "	10° "
3. Seven " " to left "	7.4° "	0.9° "

The galvanized arm made almost double the progress of the other (1 : 1.72).

Under faradism there was no gain perceptible, and under massage there was a positive loss.[1]

I know of no other accurately measured, scientific test under proper conditions which demonstrates so perfectly the power of the constant galvanic current to promote nutrition. It would add greatly to our knowledge if similar observations were made. And it is undoubtedly the catalytic effect of the electricity which is responsible for the nutritive changes. These are certainly of the greatest importance in a large number of cases, especially in all forms of paralysis, where it is important to keep the muscles strong. It is undoubtedly through its catalytic action that galvanism produces effects in nervous diseases—if such effects are obtained. It is one object of this discussion to elicit the experience of those present as to these effects. I have never seen a case of organic disease of the brain or spinal cord which I could consider cured by the application of electricity. Such cases sometimes improve under treatment for a time, and then grow worse in spite of it. Others do not improve at all. Perhaps it is well to be more definite in statement.

In diseases of the brain, such as cerebral hemorrhage, sclerosis, abscess, tumor, or embolic softening, as well as in all forms of insanity, I consider electrical treatment useless. It cannot affect the pathological process which causes the symptoms. In diseases of the spinal cord it is usually recommended and often applied. Roughly, we may divide these diseases into (1) inflammatory destructive lesions of the gray matter, and (2) sclerotic processes. In the first class, of which disseminated myelitis and infantile paralysis may be taken as types, there may be an object in reducing congestion; but it is not certain that this can be accomplished for any length of time by electricity, as it can by counter-irritation or cupping. After the acute stage is over, spontaneous recovery will occur in greater or less degree in many cases. Is this aided by the application of electricity to the spinal cord? I have yet to be convinced that it is, though I admit that I still employ the agent in deference to the opinion of certain authorities. In the second class, of which locomotor ataxia is a type, it is theoretically difficult to assign any effect upon the sclerotic process of a change of molecular state. And, practically, it seems to me that few definite results can be affirmed regarding the effects of its application. Ataxia and spastic rigidity do not appear to be removed either temporarily or permanently, and its analgesic qualities are very often disappointing. In spinal affections, therefore, it seems to me that experience does not confirm the statements of some text-books and of those whose interests lie in the direction of its use.

This experience conforms to that of such a careful observer as Gowers,[1] who, in his recent text-book, states that electrical treatment fails in his experience to affect the progress of organic nervous diseases.

Another question of importance is, to what degree the electrical state is induced in deep-lying tissues such as the brain and spinal cord? The body is not homogeneous and the power of conduction of different tissues varies greatly. If two pipes lead out of a reservoir, one free, the other plugged with rubbish, the water will seek the easy outlet to the exclusion of the other. To rely upon the diagrams of the diffusion of electric currents in the body is to be misled. Muscle conducts easily, bone less so, least of all the nervous tissue, which is peculiarly insulated by its fluid surroundings. The result must be that but a small fraction of the current reaches the nervous organs in comparison with the amount applied. Just how much does reach them has never yet been accurately determined, and cannot be from the nature of the case in a state of health.

Recently the spinal cord and brain have been laid bare by surgeons. It would be profitable in future, in appropriate cases, to determine by accurate electrical measurements to what extent currents sent through the body affect these exposed parts of the central nervous system. There is no reason to suppose that such experiments would be dangerous.

In peripheral nerve lesions many of the objections urged against the use of electricity in affections of the central organs are obviated. It is possible to localize the application and to determine by the sensations and motions produced just what nerves

[1] The Medical News, April 18, 1885.

[1] The following quotations from Gowers are cited in support of the statement in the text:

"There is no evidence that the application of electricity to the spinal column has any influence on the process of recovery in acute myelitis. Its chief value is to maintain, as far as possible, the nutrition of any muscles of which the nerves have undergone degeneration."—Vol. i. p. 235.

No mention of electricity is made by Gowers in dealing with the treatment of chronic myelitis.—Pp. 245-6.

"Electricity has been strongly advocated and largely used in the treatment of infantile paralysis, and there is reason to believe that it is useful, although its influence has been much exaggerated. In no sense is it a curative agent, and there is no evidence that its application to the spine is capable of increasing the degree or accelerating the course of the recovery of the nerve elements. Nor is it easy to obtain evidence of its influence over the muscles. If the wasting is rapid, this progresses in spite of daily and sedulous applications. Nevertheless, its demonstrable effect on the muscles in causing their contraction must have an influence in the right direction upon their nutrition. This is of no avail if no recovery takes place in the spinal cord, but in most cases some recovery in the cord does occur."—P. 270.

"Electricity has little influence on the chief symptoms of tabes. The voltaic current is powerless over either the pains or the ataxy, whether it be applied to the spine or to the limbs."

After alluding to faradization of the skin in pain, and in incontinence of urine, Gowers adds:

"The central cause usually renders local treatment ineffective."—P. 326.

"Electricity is useless in spastic paraplegia."—P. 340.

"The most sedulous and skilful use of electricity—voltaic or faradic—fails, as a rule, to produce any effect on the course of progressive muscular atrophy."—P. 38.

are affected. It is not improbable that favorable nutritive effects are produced by the increased circulation and more rapid chemical changes induced by the agent. It would be interesting to ascertain definite time results in the treatment of these diseases. Is the duration of a lead palsy shortened by the application of a constant current? Is the course of a facial paralysis in any way affected by its use? I have been much disappointed by the lack of rapid results in the former. I have seen the latter go on to the most severe form, with a permanent paralysis, in spite of the most careful applications of electricity. Many cases of both diseases get well. Does electricity aid the cure?

In neuralgia the galvanic current is doubtless of service, the palliative effects of the positive pole being proven. The rule proposed by Dr. Gibney, of increasing the current until the patient has peripheral sensations in the area of distribution of the nerve treated, seems to me of great value, for unless such sensations are perceived it is unlikely that the nerve is really brought into a state of electrification. If the spinal cord is really excited by the current, why should not general peripheral sensations be produced? It is rarely that I have succeeded in causing them, and I do not think they are elicited in the usual method of application.

b. Cataphoric effects. The power of electricity to promote osmosis is well proven. A transfer of substances from the positive to the negative pole through intervening organic tissue can be made. This is termed a cataphoric action. It has been used of late in the production of local anæsthesia, and for the quieting of neuralgic pain; cocaine, morphia, and aconitia having been brought into direct contact with painful nerves in this manner. As a method of treating neuralgia this is of distinct service, as has lately been proven by Dr. Peterson before this Academy. Medicated electric baths, which might be arranged on this principle, cannot be at present commended, since the dosage of the drug thus employed is wholly uncertain.

c. Electrotonic effects. It has already been stated that the application of electricity produces a state of electrification in the molecules of the body. This state varies under the different poles of the battery, and each pole is supposed to produce an effect the exact reverse in kind from that under the other pole. These opposite states are known as anelectrotonus and katelectrotonus. It is not necessary for us to determine whether the state produced is due to a parallelism of molecular vibration, comparable to that occurring in polarized light, or whether it is a state induced in the dielectric, the impalpable ether surrounding the molecules. Suffice it to say that two electrotonic states exist, one at each pole, and that the tissues between the poles share in these states in the direct ratio of their nearness to the poles.

The sudden production of either state excites violent molecular movements in the tissues, and these become doubly violent if either state is suddenly replaced by its opposite.

Each tissue manifests its irritation in its own manner, the muscle by contraction, the motor nerve by sending a motor impulse to the muscle, the sensory nerve by transmitting a sensory impulse to the brain. Hence to excite tissues to functional activity sudden changes in their electrotonic state are produced by suddenly closing or opening or reversing the constant galvanic current. The last-named procedure, reversing the current, or using voltaic alternatives, is necessarily the most active excitant of all. No one can deny the beneficial effects produced by exciting the functional activity of the various organs, especially when, as in paralysis, the organs cannot be voluntarily set to work; for exercise aids nutrition, promotes the circulation, assists metabolism. It is probable that no other method equals this in these respects, massage being decidedly inferior. The electrotonic effect upon the vessel walls is also proven, for a decided dilatation of the smaller arteries can be seen after an application; and when this condition has passed off, if the part be immersed in warm water, the local redness becomes again manifest. This has been ascribed to the chemical changes set up by the catalytic action of the current, but the fact that it is more intense at the negative pole demonstrates that the result is due, in part at least, to the electrotonic state produced; and the fact that it is caused by a faradic current, which has no catalytic effect, confirms this statement. The effects of faradism are exactly the same as those of a very rapidly interrupted galvanic current. Faradism is indeed nothing more than a weak galvanic interrupted current reinforced by magnetic induction. The effects of faradism are, therefore, wholly electrotonic effects, never catalytic or cataphoric. Its convenience in being produced in a portable apparatus is its only advantage over voltaic alternatives. The difference of response to the faradic current from that of voltaic alternatives, in conditions known as the reaction of degeneration, is not to be ascribed to any difference in the nature of the current, but only to the fact that the degenerated muscle will not respond to changes of state so rapidly produced. Since muscular contractions are desired in the treatment of paralysis, it follows that faradism is useless unless the muscles act to it.

Admitting the great use of interrupted currents in exciting tissues to activity by producing changes of electrotonic state, can further claims be allowed? There is one which has already been alluded to in dealing with static electricity, namely the reflex effect of surface irritation. It is not unlikely that changes of circulation or of molecular state—very beneficial in character—may be excited in central organs by

such reflex irritation. It is evident, then, that the only possible effect admitted to occur from an application of static electricity can be produced equally well by interrupted currents.

To sum up the facts here presented we may say that

1. Static electricity offers nothing beyond an interrupted galvanic current, and fails to furnish those effects which are most desirable in the treatment of disease.

2. A constant galvanic current can produce chemical changes which aid nutrition, or destroy tissue according to the strength employed.

3. A constant galvanic current can transfer medicines into the body from without.

4. An interrupted galvanic current, or a faradic current, can excite various organs to functional activity, thereby aiding their nutrition.

5. It is questionable whether the pathological state causing organic diseases can be in any way influenced by electricity.

6. If functional diseases are benefited, it is in an uncertain manner; it being undecided whether it is by influencing the molecular condition, the chemical changes, the circulation, or the electrical state of the organ affected—or by the state of mental expectation induced. The agent is therefore used empirically, and the physiological indications for it are as yet uncertain. As a therapeutic agent its use is very limited and carefully balanced scientific observations are still needed to establish its proper sphere.

It has been the object of this paper rather to sum up certain facts as opposed to tentative theories than to state anything new. It is also the object to elicit expressions of opinion of the use of electricity in therapeutics—based upon the experience of those who have given it a careful trial. All reference to the use of electricity in diagnosis has been purposely omitted.

I cannot, however, close without stating that after the constant use of electrical treatment for the past six years in dispensary and in private practice, I have been disappointed in the results obtained. And I cannot ascribe this lack of result to any defect in the applications, for they have been made with care, with the best of apparatus, and with exact galvanometric measurements, according to the methods described by such authorities as Erb, De Watteville, Benedickt and Beard. My experience coincides with that of Gowers that the therapeutic effects of electrical applications have been much exaggerated and are really very limited and quite uncertain.

INTRAMUSCULAR INJECTIONS OF MERCURY IN SYPHILIS.[1]

By HENRY BUCKMASTER DEALE. A.M., M.D.,
of Washington, D. C.

The subject of hypodermatic or intramuscular medication in syphilis has, of late, claimed such an amount of attention that I thought possibly a brief history of a few cases, which it was my good fortune to have in charge, might prove of some little interest to this Society.

After a tolerably thorough investigation of the bibliography of the subject, I find that very few of the profession in America have written on this method of treatment; indeed, only three names of our own countrymen were found; France and Germany being the principal localities for its discussion. A method introduced as long ago as 1864, by Scarenzio, in Italy, has until quite recently lain dormant, and is now a subject occupying the minds of many leading syphilographers of the continent.

The majority, or, indeed, nearly all of those whose writings I sought, use either calomel in glycerine or the perchloride of mercury in distilled water, though many other preparations of mercury are recommended, all claiming various advantages for their special preparations.

In the few cases I present, the bichloride of mercury only was used, injected deep into the gluteal muscles, with certainly most satisfactory results, so far as my observation of the cases was carried, though scarcely sufficient time has elapsed to prove anything positive.

Without doubt, at first thought, the mild chloride would seem the preparation possessing superior advantages,—it being injected in the insoluble state, is slowly changed by the chlorides of the blood to the soluble double chloride, thus being absorbed more slowly, and at the same time eliminated very much more gradually, thereby keeping the system under its influence longer, and necessitating fewer injections; but, strange as it may seem, the experiments with calomel have had a much more direful history as regards the formation of abscesses, notwithstanding it is supposed to be the less irritating preparation.

The only objections to this method of treatment urged by its many opponents, are the danger of formation of abscesses, and the pain at time of injection and for a short time subsequent; now, if these be proven unfounded, certainly none but would acknowledge this method as superior in every respect to the old forms of treatment, which have always possessed many serious drawbacks. As given through the alimentary canal, there is a constant tendency at least to a derangement of this tract, with greater

[1] Read before the Clinico-Pathological Society, of Washington, D. C., Nov. 6, 1888.

probability of salivation; the inunction method possesses the objection of uncleanliness with others, etc.

Among the claims to superiority of the intramuscular injections, may be enumerated: the exactness of the amount of mercury absorbed by the system; the avoidance of gastric and intestinal derangements; the slightest probability of salivation; and the absolute knowledge possessed by the physician that his medication is followed, a fact of which he is not always possessed.

In answer to the first, and really only rational objection urged, namely, the danger of abscess, the results of many skilful experiments, as well as my own slight experience, demonstrate that this danger may be reduced to a minimum, or, indeed, *nil*, if due care and caution are exercised by the practitioner.

J. A. Bloxam, of Charing Cross Hospital, England, gave 1924 injections of the bichloride of mercury, with only one abscess, and this he was convinced was due to the injection not having been inserted sufficiently deep. Lewin is reported to have given the incredible number of 300,000 injections, with only 20 abscesses; Parkert 5000 injections, with no abscesses; Segmund 631 injections, with 5 abscesses; Smet 900 injections, with none; and I myself have given about 230 injections, with not a single abscess. All the above statistics are where corrosive sublimate is used in varying doses.

The result is by no means so favorable as regards abscesses when calomel is the preparation injected. Smirnoff gave 1523 injections of calomel in varying proportions from ⅜ to 1½ grains, with 72 abscesses, or about four per cent., and as far as I was able to discover, I found no one who recorded more satisfactory results with calomel than Smirnoff.

Dr. J. C. Wilson, of Philadelphia, in a very interesting article in The Medical News, reports several cases with most satisfactory results when calomel was used; he much prefers this preparation, on account of its "prolonged and relatively mild influence." Women, it appears, are more subject to abscesses from injection than men, due, it is supposed, to the greater amount of cellular tissue in the locality the injections are given, and the solution not being thrown into the muscle,—as all the patients under my care, in which this treatment was followed, were males, I, personally, have had no experience in this regard.

In reference to the pain inflicted, all observers state that it is of rare occurrence that any objection is urged on this accouut, though that there is slight pain, there is no doubt; in only one instance was this objection made by those under my care. It is recommended that a few drops of cocaine solution be added to the mercury solution, but I think this is fraught with some danger.

The following is a brief synopsis of three or four of those cases under my supervision:

Case I.—J. R., white, male, twenty-eight years, laborer, Irish, had primary sore about six months previous, applied for treatment suffering from pronounced secondary symptoms, viz,, alopecia, sore throat, periosteal pains, etc., the cervical, inguinal, and epitrochlear glands indurated.

He was first given green iodide of mercury one-third of a grain t. i. d., which so soon deranged his stomach, with no apparent abatement of symptoms, that it was determined to try intramuscular injections of the bichloride of mercury; one-sixteenth of a grain was injected daily for four weeks; the pain in the tibia, which had been so severe as to keep him awake at night, gradually disappeared, and all other symptoms rapidly improved. He returned to his work, reporting from time to time for six months, with no return of any symptom.

Case II.—J. C., white, male, thirty-three years, laborer, American, had primary sore quite ten years before, and always since that time had some pronounced symptom, though having been under medical care off and on during all these years. He came to the hospital especially for treatment of his eyes—he was suffering from cyclitis and choriditis, being only able to distinguish light from darkness. His alimentary tract was in such a condition, from the excessive use of mercury, that not the lightest diet could be retained, and he had severe diarrhœa. His body and limbs were absolutely covered with a coppery eruption, his hair and beard thin and in patches, suffering at times with most excruciating pains in limbs. Twenty-five hypodermatic injections of $\frac{1}{16}$ Hg_2Cl_2 were given within a month and a half, with bathing the eyes in hot water, and atropine solution (4 grs. to ℥j) in eye morning and evening. His eyesight gradually improved until he was able quite readily to walk about house and grounds, also to read large print. The eruption to a great extent faded, though not entirely; his general health and strength were much better than for years. At one time there being some slight tenderness of gums, the injections were omitted for five days, after which time they were given daily until his discharge.

Although asked to report from time to time, nothing was heard of him except that he had fallen into the hands of a physician who was continuing the same form of treatment, but with what further results I cannot state.

Case III.—J. A., white, male, forty-one years, laborer, American, primary sore one year before, suffering from a most severe form of iritis, body covered with eruption, inguinal glands indurated.

Twelve injections of $\frac{1}{16}$ gr were given him, with a rapid disappearance of the iritis, and fading of the eruption.

Case IV.—D. R., white, male, thirty-nine years, bookkeeper, American, had primary sore some years before, exact time not known. He had extreme sore throat, with extensive ulceration of soft palate, intense pain in limbs, thereby incapacitating him for work.

Twenty-five injections were given daily, after which ten injections were given at the rate of one every other day, finally twelve injections at the rate of one twice a week—making a total of forty-seven injections with an entire disappearance of all symptoms; this case is still under observation, it now being five months since any treatment was given.

Several other cases might be cited, but I have selected these as the most pronounced in symptoms, though the results in all were satisfactory.

As before stated, I have given in all 230 injections with no evil consequences and with most satisfactory results; now I am aware that such a limited experience does not permit me to urge that abscesses are inexcusable and due to lack of care on the part of the practitioner, but without doubt it is permissible to say that if proper care is exercised such a calamity would be exceedingly rare. The following are the precautionary methods which guided me:

1. Wash the part to be injected with a warm carbolized solution.

2. Wash the syringe and needle with warm carbolized solution before and after each injection.

3. Have the chill taken off the mercurial solution by placing the bottle in hot water, while making the other preparations.

4. Inject with a sharp, fine needle deep into the muscles of the buttocks.

5. Alternate the injection from day to day from right to left side.

6. After removing the needle use friction over the point of injection for a few seconds.

Much trouble is caused by the needle used, the action of the bichloride on the metal corroding it and making it brittle; but I have found that if the needle were well greased with vaseline before and after each injection, this could be obviated, also the small wire inserted through the needle should be anointed, with these precautions I have used the same needle for five months.

The solution used was as follows:

℞.—Hydrarg. bichlor. . . . . gr. iij.
Sodii chlor. . . . . ʒss.
Aquæ destil. . . . . ʒx.—M.
Inject ♏x to ♏xx.

It is advised to give some simple tonic during the time the treatment is being continued.

These results of many most skilful and cautious experimenters, with my own slight experience, have been presented, not so much to laud the intramuscular injections, or any special preparation of mercury in the injection, as I believe with due care any of the forms of mercury suggested could be used without danger, being only guided by the urgency of the symptons; but rather to prove that a method dismissed by most authors with a very few unfavorable words, and discountenanced by many practitioners on account of danger of abscesses, does not possess by any means the dangers or drawbacks attributed to it; also to urge its trial by those who have not yet proven or disproven these assertions.

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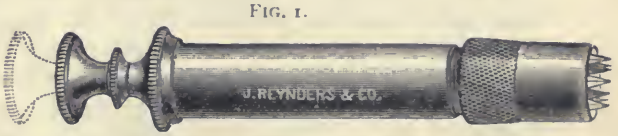
THE TREATMENT OF ACUTE INFLAMMATION OF THE MIDDLE EAR.[1]

By GORHAM BACON, M.D.,
of New York.

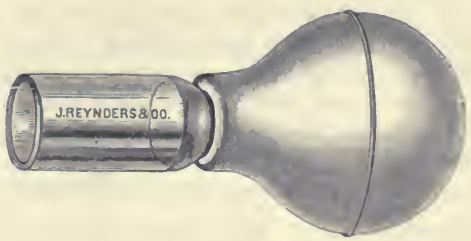
It is not my intention in this paper to describe the different methods of treatment that have been recommended from time to time, in acute inflammation of the middle ear, but simply to refer to a plan of treatment which, in my hands, has proved most satisfactory in its results, and to call attention to the use of the artificial leech, which I described in the *N. Y. Medical Journal* of Jan. 7, 1888. I feel justified in again referring to this instrument, as a number of others, who have since used it, have arrived at similar conclusions as myself.

Fig. 1.



The artificial leech consists of a scarificator, composed of seven lance-shaped needles, which are concealed. The depth of the punctures can be

Fig. 2.



regulated by screwing or unscrewing the end or cap of the scarificator. When this has been determined, the spring is pulled back, the instrument is applied to the parts and the tissues scarified.

[1] Read by title before the New York State Medical Society, Feb. 5, 1889.

A cupping-glass made adaptable to the parts about the ear, is then immersed in hot water for a few moments in order to promote the bleeding as much as possible and applied close to the tragus, below the lobule, or over the mastoid process, according to the seat of the inflammation. The glass itself holds three drachms. The cup when applied is held in position by the patient.

The reasons that I gave a year ago for discarding the leech and substituting the scarificator and cupping-glass were the following:

1. The leech is particularly disagreeable to many patients, especially children.

2. It is frequently very difficult to arrest the bleeding following a leech-bite.

3. A leech-bite occasionally gives rise to erysipelatous inflammation and ulceration and not infrequently produces a circumscribed abscess even in apparently healthy individuals.

4. Leeches are not always to be had, especially in the country, and are very frequently a troublesome remedy besides being expensive.

With the artificial leech, on the other hand, the quantity of blood abstracted can be entirely regulated and its application is more agreeable to the patient, besides being an instrument that is always at hand.

I use the artificial leech not only in dispensary practice but also at my office, so that I am able to note the good effects usually following the local abstraction of blood, while I am certain of having the leech applied at the proper point about the ear, which is a most important consideration.

It is in the first or hyperæmic stage, either of catarrhal or purulent inflammation of the middle ear, where the tissues are deeply congested, that the local abstraction of blood is followed by such favorable results as are shown by relief from the pain and tension in the ear. The inflammatory process will frequently be cut short at once by the early application of the leech, and I believe that in all cases the further progress of the disease will be greatly modified.

Not only is the local abstraction of blood by means of the artificial leech followed by most beneficial results in the early stage of acute inflammation of the middle ear, but also in acute inflammation of the external auditory meatus and mastoid cells.

The following are a few among a great number of cases in which I have used the artificial leech.

CASE I.—Wm. C., æt. eighteen years, was seen by me Jan. 11, 1887, on account of an ear-ache in his right ear, which commenced January 4th. The discharge appeared January 9th, but the pain continued. He had a similar attack a year ago. Watch, right ear, 0″; left ear, normal. Bone-conduction better than the aërial for the right ear. Right membrana tympani swollen, inflamed; perforation in the post inferior quadrant; some scanty purulent discharge in the middle ear, which was forced out by inflation. The artificial leech was applied and the pain was somewhat relieved. He was also given drops of zinc sulph., grs. iv–℥j, to use twice a day.

Jan. 15. The pain in the ear disappeared two hours after the cupping at the last visit and has not troubled him since. The canal contains pus in greater quantity. There is a slight enlargement of the glands over the mastoid. To continue using the same drops.

CASE II.—J. O'B. consulted me Feb. 8, 1887, on account of pain in the left ear, which he had had for two weeks. It is especially severe at night and there is some pain on swallowing.

Examination.—Right auditory canal contains cerumen. Left membrana tympani somewhat congested and very much retracted. Watch, left ear $\frac{15''}{48.}$

Politzer inflation somewhat painful. The artificial leech was applied just below the lobule and over the mastoid process. There was immediate relief from the pain. The patient was not seen again.

CASE III.—Thomas W., aged nineteen, a carpenter by occupation, said that for the last three nights he has had severe pain in the left ear. There is also a dull throbbing noise. Watch, right ear 4″; left ear, contact. The bone-conduction is slightly better than the aërial for both ears. Left auditory canal congested; there is also slight inflammation of the membrana tympani but no perforation.

The ear was inflated after Politzer's method; some slight cheesy matter was syringed out and the artificial leech applied.

Feb. 18. He has had no pain since. There is a slight discharge in the canal. Politzer inflation. To use drops of zinc. sulph. grs. iv–℥j. Watch: right ear, 8″; left ear, 5″.

25th. Much improved. To continue the same treatment.

CASE IV.—Max S., aged forty-three, a porter, complained March 4, 1887, of a sore throat and cold, which he had had nine days ago and which extended to the left ear. He says he has had a blister over the mastoid. The pain has been very severe every night but it is somewhat less to-day since the ear has been discharging.

Examination.—Right membrana tympani somewhat retracted and hazy; cone of light very small. Left auditory meatus inflamed and contains pus.

The artificial leech was applied just in front of the tragus and he was given drops of zinc. sulph. grs. iv–℥j.

The patient returned March 11, and said that he had no pain on the night of March 4, but that it has been present more or less since then. The ear was again cupped. He was not seen again.

CASE V.—Rebecca K., aged thirty-eight years, came to the Infirmary March 29, 1887, and said that she first had pain in the right ear two weeks ago. The right membrana tympani was found very much congested, as well as the inner end of the auditory canal; the left membrana tympani retracted and showing evidences of catarrhal changes. The arti-

ficial leech was used and she was given drops of atropiæ sulph. grs. iv–℥j.

She returned April 1, and said that she had not had much ear-ache but considerable pain in the right side of the head. The congestion of the drumhead and canal was much less.

CASE VI.—Mary G., aged twenty-five, a domestic, came to the Infirmary April 5, 1887. She says that last week she had a severe head-cold. Sunday night, three days ago, she had pain in the right ear, which has been present more or less since then, but has been somewhat easier last night and to-day. Watch: right ear, 0″; left ear, 15″. The right membrana tympani very angry-looking and congested and slightly bulging. The inner end of the auditory canal congested and losing its dermal lining. The membrana tympani was punctured and a few drops of pus evacuated. The artificial leech was then applied just in front of the tragus.

April 8. She returned to-day and said that the pain had been much less ever since she was here. The drumhead shows less congestion and there is some pus in the canal, which was syringed out. Watch, right ear, 1″. The ear was inflated by Politzer's method and she was given drops of zinc. sulph. grs. ij–℥j.

CASE VII.—Anna K., aged fifty-three years, was seen April 19, 1887. She says she never had any previous ear disease. She has had a cold in her head and chest most all winter. She has lately had a fresh cold, and three days ago the right ear pained her severely. This continued yesterday but is not as bad to-day, as she only has an occasional stinging pain. She complains of a buzzing noise in the ear and there is some tenderness behind the auricle and below the mastoid. Watch: right ear, 1″; left ear, 6″. The right membrana tympani very much congested as well as the entire auditory canal, which is swollen as well.

The artificial leech applied to the ante-auricular region and also over the apex of the mastoid process caused the pain to disappear at once. The tinnitus was also much less. She was given drops of atropiæ sulph. grs. iv–℥j. She was not seen again.

CASE VIII.—John Van T., aged thirty-three years, railroad employee, May 27, 1887. He has had an ear-ache on the left side steadily for a week and on examination, the bottom of the left auditory canal contains some inspissated pus, which was removed with the syringe. The drumhead was then found perforated and congested, as well as the inner end of the auditory canal.

The leech was applied in front of the tragus and just below the pinna. The pain entirely disappeared. The patient was not seen again.

CASE IX.—Caroline A., aged nine years, was seen at the Infirmary, April 26, 1887. Two months ago, she says, she first had a discharge from the left ear which lasted for two days. She had no further trouble then till four days ago, when she had severe pain at night. This has continued day and night ever since and there has been no discharge.

Right membrana tympani dull, thickened and retracted, with almost no cone of light. Left membrana tympani macerated, congested, with the dermal layer peeling off, as well as from the inner end of the auditory canal, which is likewise congested.

An artificial leech applied, relieved the pain at once. The ear was inflated by Politzer's method and she was ordered to douche the ear with warm water at home.

April 29. The ear has been better since she was here, but this morning she experienced some pain. The leech was again applied. The patient was not seen again after this.

CASE X.—A physician, aged thirty years, came to see me January 3, 1889, on account of a dull pain and slight deafness in the left ear, which he first noticed the previous night. There was also some tinnitus and an examination of the ear showed some congestion of the left membrana tympani, especially along the handle of the malleus.

The artificial leech was used, giving immediate relief to the pain. An astringent spray was used in the posterior nares and drops of a 4 per cent. solution of cocaine instilled warm into the ear. He was also told to take small doses of aconite. He returned the following day and an examination of the ear showed absence of all inflammation. The pain and noise in the ear had entirely disappeared.

A NEW METHOD OF MAKING ANAËROBIC CULTURES.

BY JOHN A. JEFFRIES, M.D.,
OF BOSTON.

ALL who have had occasion to grow bacteria without oxygen must have been struck by the difficulty of the various methods described, the time required, the expense, and the doubt in each case if oxygen has really been excluded.

The earlier methods of covering plate cultures with a sheet of mica, or filling up test-tubes with sterile gelatine, are insecure and do not offer any evidence if oxygen has obtained access to the culture, while the last has the great objection of making the culture inaccessible.

The more recent methods, which depend upon driving out the oxygen with carbonic dioxide or hydrogen, are very troublesome in practice, and, as an atmosphere is left, often leave one in doubt if oxygen is really absent, to say nothing of the presence of the carbonic dioxide. The latest method depending on the absorption of oxygen by pyrogallic acid in caustic potash solution is efficient in removing the oxygen; there is always, however, danger of leakage around the cork.

None of the methods give any evidence of gas being given off by the culture.

Desiring to determine the ability to grow without air, as well as to gauge the fermentative powers of a large number of species of bacteria, I was forced to search for an easier and more accurate method, and have adopted the very simple one of inversion over mercury.

It is only necessary to inoculate the gelatine culture as usual, fill the tube up with mercury, cover with the thumb and invert, as done in preparing tubes for gas analysis, in a small crucible containing mercury. The tubes can then be stood in a rack and watched from day to day as easily as if in the open air.

This method is certainly simple, takes less than a minute's time and is inexpensive; besides the advantages in execution over the ordinary methods, it has the further advantage of giving prompt proof of the presence of air, such rising to the surface of the mercury on inversion, and retaining any gases that may be evolved by the culture.

As the time of manipulation is very short, the danger of contamination is slight. Should any foreign germ get in, it must form a colony and become visible.

It is almost needless to say that sugars and starches may be added to the gelatine, and that the mercury should be sterilized in the steamer before use. If the mercury is dirty, it can be filtered, cleansed with twenty per cent. nitric acid, or, what is much simpler, wiped with absorbent cotton.

The fear which I at first entertained that the mercury would kill the bacteria has proved unfounded, the plants growing on the surface of the gelatine in direct contact with the mercury.

It is my habit in cases where no growth takes place to pour out the mercury, put in a cotton plug and stand the tube back in the rack. After the lapse of a few days, growth usually takes place, thus proving that the plants have not died from poisoning or suffocation.

MEDICAL PROGRESS.

A New Procedure for Destroying Tattoo-marks.—It is well known how difficult it is to destroy tattoo-marks, which are at times so annoying to the unfortunate ones who have been foolish enough in a thoughtless moment to allow their bodies to be covered with designs often more or less obscene. Dr. Variot has just indicated a new procedure, after a number of experiments which he has carried out at the Central Infirmary of the Paris prisons. He pours at first upon the portions of the tattooed skin a concentrated solution of tannin; then, with the aid of a bunch of needles like those employed by the tattooers, he makes close punctures over the whole surface of the discolored skin. He then passes a stick of nitrate of silver with considerable pressure and friction over the whole surface upon which he has operated and pricked in the tannin. He allows the concentrated solution of the silver salt to act for a few instants upon the epidermis and the derma until the pricked points become of a dark or black color. He then wipes off the skin, and the surface is found to have become black from the formation of a tannate of silver which is produced in the superficial layers of the skin.

In the first two days which succeed the cauterization there is a slight inflammatory reaction, with a variable amount of pain. In the two following days all parts which have had the tannin pricked in and the nitrate of silver subsequently applied take on a deep black tint, forming a sort of crust, or eschar, which is thin but quite adherent to the deeper parts. On the third or fourth day after the operation the crusts are wholly painless. If, however, the tattoo has been extensive, the movements of the parts may become painful. At times a little suppuration takes place beneath the crust, but there is never a great degree of inflammatory reaction. . . . In from twelve to eighteen days the crust, or superficial eschar, becomes detached spontaneously, the derma and epidermis have become repaired beneath it, and there is seen in place of the tattoo which has fallen with the crust a superficial red cicatrix which becomes progressively decolorized, and two months after the operation is but very little noticeable.

Dr. Variot has employed without success fly-blisters; the red-hot iron, which may leave disfiguring cicatrices; tattooing with white substances, such as powders of enamel, pricking in milk, phenic acid, and tincture of cantharides. He has used tannin alone, acetic acid, the acid oxalate of potassium, and the ten per cent. solution of nitrate of silver—all to no purpose. The author thinks that his procedure could be employed with advantage in natural pigmentary spots and in congenital nævi more or less extensive and more or less deforming. Apropos of Dr. Variot's communication to the Society of Biology, Dr. Dupuy said that in the islands of the Indian Archipelago they cause tattoo-marks in Europeans to disappear by practising a new tattooing with the juice of the *Carica papaya*. The operation leaves no cicatrix, and takes away red tattoo-marks as well as the blue ones.—*Journal of Cutaneous and Genito-Urinary Diseases*, March, 1889.

Acute Gonorrhœa treated successfully by a New Method.—Dr. John M'Caw, of Belfast, reported at a meeting of the Ulster Medical Society held January 23, 1889, a case of gonorrhœa contracted four days previously, treated by the introduction into the urethra of medicated bougies; the medicament consisted of sulphate of thallin of five per cent. strength.

Before introducing the bougie he made the patient micturate, in order to clear the urethra of discharge, and then passed the bougie up to the ring, and directed him to hold the meatus quite close, so that none of the application could flow out as it melted. He kept him lying on his back for twenty minutes, at the end of which time he withdrew the spring and closed the meatus with cotton-wool. During the time the bougie was in the urethra he complained of smarting pain, but after he withdrew the spring the pain ceased entirely, and he expressed himself as feeling comfortable. He introduced one every evening after this, and on the third day he called to say he was quite cured, having no discharge of any kind, and no pain on passing water. The day following happened to be his busiest day in the week, as he had to work to twelve o'clock at night, and be on his feet the greater part of that time. In consequence of this he could not use his bougie that day at all, and on the next morning there was a slight return of the former symptoms; but he began anew his treatment, and after using two more bougies, was again perfectly cured. He

has remained so since, although he has undergone the heavy day of the week which caused him to relapse before, and this time with impunity. No bad after-effects of any kind resulted from the treatment, and his patient was very grateful, as well as very much surprised and delighted, for he had been looking forward to a two months' course of copaiba-drinking as in a previous attack with anything but pleasant recollections.—*Dublin Journal of Medical Science*, March, 1889.

Tannin Treatment of Phthisis.—Dr. E. Houzé, of the Hospital St. Jean, Brussels, after having tried the tannin treatment on all his phthisical patients for the last year and eight months, states as the result of his observations that it gives excellent results in all stages of the disease, and especially in the condition where cavities exist. Indeed, he has no hesitation in declaring that of all the different kinds of treatment for phthisis which he has tried this has given by far the most encouraging results. The dose he employs ordinarily is fifteen grains, which quantity is taken three times a day. It is, as a rule, well borne; where this is not so, it is ordered to be taken with meals. After the first few days the expectoration and the sweats diminish, the cough decreases, and in many cases the appetite undergoes a marked improvement. The majority of the patients suffered from some slight degree of constipation, though in some this feature was sufficiently marked to require treatment; while others, again, suffered from diarrhœa. The character of the expectoration changed for the better, the sputa becoming white and frothy instead of green and firm. In some cases the diminution of the expectoration was followed by increased dryness of the cough, so that the patients complained that it fatigued them more; this was easily remedied by prescribing a few spoonfuls of syrup of codeia. The physical signs underwent a remarkable change for the better, at least those depending on auscultation, moist râles giving place to dry rhonchi, and large gurgling râles decreasing progressively until they gave place to mere blowing respiration. These changes were evidently due to the drying up of the cavities, in consequence of which the hectic present in many of the cases vanished, the patients increasing considerably in weight and gaining strength in a remarkable manner. The percussion signs were not found to undergo so marked a change as those dependent on auscultation, but even here some improvement could be detected. No bacteriological observations were made.—*Lancet*, March 9, 1889.

Treatment of Ozœna.—*General treatment* consists in the use of tonics, cod-liver oil, and iodine preparations.

Local treatment must be antiseptic, hence the patient should make use of nasal irrigation, using for this purpose from two to four pints of a sulphurous water, or a salt or chlorinated solution (using one tablespoonful of rock salt to two pints of water) or a solution of potassium.

A second irrigation should be made with an antiseptic solution of chloral, of creolin, of salicylate of soda or carbolic acid, as, for example:

℞.—Creolin	. . . . .	1 part.
Alcohol (pure)	. . .	120 parts—M.

A solution to be made by taking one teaspoonful of this mixture to two pints of warm water.

Or,

℞.—Carbolic acid	. . . .	20 parts.
Pure glycerin	. . . .	100 "
Alcohol (90 per cent.)	. .	50 "
Water	. . . . .	350 " —M.

Sig.—A tablespoonful to two pints of warm water.

After the lapse of several weeks, treatment is completed by the application of astringent powders such as tannin, which has been rendered antiseptic with chloral or carbolic acid. The following formula is recommended by Dr. Moure:

℞.—Carbolic acid	. . . .	40 parts.
Resorcin (crystallized)	. .	6 "
Glycerin (pure)	. . .	100 "
Water	. . . . .	1000 "
Antiseptic vinegar	. . .	1 part.—M.

or,

℞.—Camphor	. . . .	8 parts.
Tincture of iodine	. . .	10 "
Tar	. . . . .	12 "
Alcohol (40 per cent.)	. .	100 "
Water	. . . . .	250 " —M.

Heat over an alcohol lamp and inhale the steam.

The applications of the powder as well as the steam inhalations are to be repeated, the latter mornings and evenings, for months and even for years.—*Revue gén. de Thérapeutique*, February 14, 1889.

Gangrene of the Colon: Successful Resection.—In the report of the meeting of the Edinburgh Medico-Chirurgical Society, held December 5, 1888, reference was made to a case of cure, by resection of the intestine, of a fecal fistula, which was the result of extensive gangrene of the transverse colon. The case, which was under the care of Mr. Cotterill, Assistant-Surgeon to the Edinburgh Royal Infirmary, has since been published. The patient was a very stout woman, eighteen stone in weight, and thirty-eight years of age. She had been subject to umbilical hernia for seven years. When seen by Mr. Cotterill she was seven months pregnant. The rupture was a bright red and angry-looking prominence about fourteen inches in diameter. The patient vomited coffee-colored fluid mixed with blood. The sac was opened, and was found to contain a large coil of gangrenous transverse colon, much sloughy omentum, and free from feculent matter. The gangrene appeared to be due, not to strangulation, but to pressure of the structures in the sac, between the pregnant uterus below and a firm binder which had been worn above. Fifteen inches of colon were cut away, and the ends of the gut were stitched to the edges of the skin-wound. The patient gave birth to a child three days after the operation.

For three months after convalescence the patient was troubled with prolapse of the intestine, with discharge of feces whenever she walked much about. She again put herself under Mr. Cotterill's care. He succeeded in keeping patent both sides of the intestinal tract, and then performed resection. The two cut ends of intestine were freed from adhesions, the upper being first ligatured to avoid the escape of feces. Traction was then made on the two ends until normal gut, covered with peritoneum, protruded sufficiently for resection. Instead of using a clamp, the operator passed a piece of thin India-

rubber tubing through a small hole in the mesentery and round the gut, fixing it there with a pair of catch forceps. Four inches of the upper segment of the colon and three of the lower were then cut away, with portions of mesentery. As the lower segment had been five months in abeyance, it was very narrow and hard to join to the upper piece. By careful introduction of over a hundred stitches, the ends were brought satisfactorily together. Fine curved needles were used, round, not flattened, and threaded with the finest Chinese twisted silk, and the Czerny-Lembert suture was employed. The cut edges of the mesentery were sutured together, and the gut was returned into the abdomen. The large umbilical opening was brought together by deep silk stitches, and a pad and binder were applied. The operation took three hours. On the third day feces passed. The patient made a good recovery. No less than twenty-two inches of large intestine were removed in the course of the two operations.—*British Med. Journal*, March 2, 1889.

The Duration of the Life of Pathogenic Microbes in Water.—Drs. I. Straus and A. Dubarry, in an exhaustive paper upon this subject, conclude with the following *résumé*:

Bacillus anthracis (without spores) was found alive in water at the end of 16, 24, 28, 65, and 131 days. Dr. Meade Bolton found it dead at the end of 6 days; while Dr. Wolffhügel found it still alive at the end of 15 days.

Bacillus of typhoid fever was found alive after 30, 35, 43, 69, and 81 days. Dr. Meade Bolton found it alive after three weeks to one month; while the researches of Wolffhügel and Riedel found it alive after 21, 27, and 28 days.

Spirillum of Asiatic cholera found alive after 16, 26, 30, and 39 days. Drs. Wolffhügel and Riedel found it alive in sterilized river water, after seven months.

Bacillus of tuberculosis found alive after 24, 25, 27, 30, 75, and 115 days; its virulence, however, seemed to be weakened from its long stay in the water. Drs. Chantemesse and Widal have found it alive in sterilized river water at the end of 50 and 70 days.

Bacillus of glanders found alive after 19, 28, 50, and 57 days.

Streptococcus pyogenes found alive after 8, 10, and 15 days.

Staphylococcus pyogenes aureus found alive after 9, 13, 15, and 21 days. Dr. Meade Bolton has found it alive after 20 and 39 days.

Bacillus of green pus found alive after 20 and 73 days.

Pneumo-bacteria of Friedländer found alive after 4, 7, and 8 days.

Micrococcus tetragenus found alive after 19 days (according to Dr. Meade Bolton, after 4 to 6 days).

Microbe of chicken cholera found alive after 2, 3, and 8 days.

Bacillus of rouget found alive after 17 and 34 days.

Bacillus of septicæmia of the mouse found alive after 19 and 20 days.

Thus, contrary to the opinion generally held, and above all defended by Dr. Meade Bolton, the foregoing would prove that there is no radical distinction to be made between the pathogenic microbes and the common microbes of water, as to their faculty of multiplying and living in water. A large number of pathogenic microbes possess this faculty, although to a less degree than the ordinary water microbes.

This is a conclusion, the correctness of which has already been admitted by Drs. Wolffhügel and Riedel.

As to the bacillus anthrax, the authors have shown that, placed in distilled water, it will give birth to spores.

This is then, no doubt, the reason why the bacilli (which produce spores) show a greater vitality in water than the micrococci. Furthermore, the chemical composition of water has no appreciable influence over the duration of the life of the pathogenic microbes living therein; they live equally as long in absolutely pure distilled water, or in water charged with organic and inorganic material.—*Archives de Méd. Expérimentale*, January, 1889.

Anæsthetic Effects of Carbonic Acid Spray.—Professor Brown-Séquard has on various occasions drawn attention to the anæsthetic properties of carbonic acid employed in inhalations or in the form of spray on the larynx. He stated at a recent meeting of the Société de Biologie that he lately had recourse to this procedure in a case of lumbago, and obtained complete success. The analgesia produced by the carbonic acid is sufficiently durable; he had seen it persist during thirty-six hours.—*Lancet*, March 2, 1889.

Colchicin in Diseases of the Eye.—Dr. Darier at the last meeting of the Parisian Society of Ophthalmology recommended colchicin in eye affections. The best results were obtained in marginal ulcers of the cornea of gouty origin, in certain cases of iritis, scleritis, and anterior sclero-choroiditis; also in certain forms of serous iritis doses of $\frac{1}{32}$ to $\frac{1}{16}$ of a grain were found of great service. In chronic and severe cases in which salicylic acid was powerless, colchicin generally effected a cure. The author administers colchicin in pill form, each pill containing $\frac{1}{64}$ grain of the drug of which from 1 to 2 or 4 or even 6 pills can be taken daily. Care must be taken to instruct patients to reduce the dose as soon as intestinal derangements manifest themselves. Treatment must be continued until a complete cure has been effected, otherwise relapses will occur. Some patients have taken as many as 200 pills, without complaining of unfavorable symptoms.—*Wiener med. Wochenschrift*, February 24, 1889.

Acupuncture in Enlargement of the Spleen.—At the Congress of the Italian Society of Medicine, held at Rome some months ago, Dr. Feletti related two cases of chronic malarial enlargement of the spleen which he had treated successfully by acupuncture. He used steel needles, such as are used for the electro-puncture of aneurisms. Having first carefully disinfected the needle, he plunged it into the substance of the spleen, leaving it there just long enough to be sure that it was in the right place. The procedure is almost painless. In one of his cases Dr. Feletti had an opportunity of examining the organ after death, which occurred (from tuberculosis) a fortnight after the last puncture. With the naked eye, small brown spots could be seen in the spleen at points corresponding to the punctures. Microscopic sections showed a roughly triangular area with its base toward the capsule, which at that point was broken; this area

was occupied by young connective tissue, together with the remains of a blood-clot. In the discussion which took place on Dr. Feletti's paper, Dr. Fazio spoke highly of the results of parenchymatous injections of quinine in similar cases, which combined the mechanical effects of puncture with the medicinal action of the drug.—*British Medical Journal*, February 23, 1889.

Treatment of Pulmonary Abscesses.—Drs. Spillmann and Haushalter (*Revue méd. de l'Est*) lays down the following rules for the treatment of pulmonary abscesses.

1st. Before interfering surgically, one should assure himself, and especially by means of an exploratory puncture, of the existence as well as the locality of the abscess.

2d. When the diagnosis of an abscess is made during the course of a pneumonia, all methods of interference are to be avoided; should the pneumonia be cured and the abscess still persist, then intervention may lead to a rapid recovery, or at all events prevent grave accidents resulting from the opening of the abscess into the adjacent structures.

3d. Before opening the abscess it would be well to provoke or bring about pleural adhesions, if the same do not already exist.

4th. To find the abscess the best mode of procedure would seem to be costal resection and the opening of the lung with the thermo-cautery.

5th. Assist by means of tubes the thorough drainage of septic secretions, discard all antiseptic washings and use instead dry dressings.—*Revue de Thérapeutique*, February 15, 1889.

Trephining in Epilepsy.—Dr. Péan related, at the meeting of the Academy of Medicine last week, in his own name and in those of MM. Ballet and Gelineau, a case of partial epilepsy produced by a cerebral tumor in a man aged twenty-eight years, which was cured by trephining. The fits were marked by painful spasm of the right great toe, followed by stiffness of the corresponding lower limb, tonic convulsions, succeeded by clonic convulsions of this limb, which were afterward propagated to the arm and the face of the same side. Other symptoms appeared, which led the authors to suppose that the fits were due to a cerebral tumor situated at the level or in the neighborhood of the motor centre of the right inferior limb; it was, therefore, decided to resort to trephining. After the ablation of the neoplasm, which consisted of a fibro-lipoma developed at the expense of the pia mater, a drainage tube was left in the cavity produced by the tumor. The four fragments of the dura mater were sutured with catgut, and those of the scalp with the "hair of Florence," and then antiseptic dressing was applied. Eight days after the operation the threads and drainage tubes were removed; on the tenth day cicatrization was complete. A few convulsive twitches, probably due to the irritation of the cerebral substance, manifested themselves in the first few days following the operation. This was two months and a half ago, and two months subsequently to that date the patient did not present any epileptiform manifestations. The cure may, therefore, be considered complete.—*Lancet*, March 2, 1889.

Inhalations of Red Iodide of Mercury in Lung Tuberculosis.—Drs. Migual and Rueff, of Paris, after numerous and careful investigations, the results of which were most satisfactory, recommend inhalations of red iodide of mercury in lung tuberculosis. After the first *séance* the cough and the expectoration, in individuals with large cavities, were diminished, and the expectoration lost its offensive odor; with further treatment the night-sweats and fever disappeared; the general condition improved and the patients gained in body weight. The formula used was as follows:

℞.—Red iodide of mercury . .	1 part.
Iodide of potassium . .	1 "
Water	1000 parts.—M.

This solution was used as a spray, at the beginning once, and later on—when the patient had become accustomed to the irritation—twice daily; applied in this manner the red iodide is harmless. Should the inhalations become too irritating the solution may be weakened to 1 to 2000. The results obtained with this weaker solution will not vary from those obtained with the stronger one, as the red iodide of mercury kills bacteria in a solution of 1 in 40,000. One of the principal features of success in treatment depends upon the duration of the same, which can be prolonged for one year without doing harm.—*Wiener med. Presse*, February 10, 1889.

On the Rapid Curative Treatment of Cystitis.—Dr. Thomas More Madden recommends, in the *palliative treatment* of uncomplicated cystitis, long-continued warm baths, washing out the bladder through a double catheter with plain warm water, thin flaxseed tea, or a solution of boro-glyceride; conjointly in all instances with absolute rest in bed, the free use of diluents, together with the administration of the old-fashioned Dover's powder in small, frequently repeated, doses, as the best opiate in these cases; and lastly, above all, the use of boracic acid in ten or fifteen grain doses three or four times a day, by which the generally fetid ammoniacal urine is deprived of its fetor and rendered less irritating to the endovesical mucous membrane.

In the *curative treatment* he has abandoned the operation for the formation of an artificial vesico-vaginal fistula, through which the urine may drain away as fast as secreted, believing that we may obtain all its advantages more easily and more safely, simply by so thoroughly dilating the urethral canal with the instrument exhibited as to enable us to pass the index into the bladder, and thereby paralyze the contractility of the sphincter of the canal for a time, which may be indefinitely extended by repeating expansion in the same way as often as may be necessary. It may, moreover, be advisable in some instances to remove the proliferating vesical mucous membrane by the cautious employment of a dull wire curette, the author's, which he used with advantage in cases of this kind. And, lastly, whether the curette be required or not, the method of dilatation just described should, in all cases, be conjoined with the topical application of carbolic acid to the mucous surface. The latter is best employed in the form of glycerine of carbolic acid of the *Pharmacopœia*, which is quite strong enough for this purpose, and introduced by an ordinary stilette, armed with a piece of absorbent cotton saturated in the application, and passed through the dilator so as to avoid any of the acid being brushed off in the canal until it reaches the fundus vesicæ, where it should be

retained for a couple of minutes, until every part of the vesical wall contracts firmly upon it. The urethral canal is then to be similarly brushed out by another application of the carbolized glycerine. The pain caused by this procedure may be prevented by previously introducing in the same way a ten per cent. solution of cocaine. This plan of treatment now recommended seldom requires to be repeated more than two or three times, at intervals of a week, to effect a cure of even the most aggravated cases of cystitis in women.—*British Med. Journal*, March 2, 1889.

For Fissured Nipples.—

℞ —Cocaine . . . . . grs. x.
Lanoline . . . . . ℥j.—M.

To be applied once or twice daily. The ointment to be washed off before nursing.—*New York Medical Journal*, March 9, 1889.

Phenacetine and Antipyrine.—PROF. MASIUS, of Liége, has communicated to the Belgian Academy of Medicine the results of a somewhat extended trial of phenacetine which he has been making in his wards during several months past. In fevers of all sorts a reduction of temperature could generally be obtained by suitable doses; usually a dose of from fifty to seventy-five centigrammes was sufficient for this purpose; it was found that the same effect could not be produced by smaller quantities, even when given repeatedly. Two grammes during the twenty-four hours sufficed to keep the temperature down. The patients said that they felt a great deal better as the temperature fell; the pulse, too, became slower and stronger, and appetite and sleep returned under the influence of the drug. M. Masius also employed phenacetine as an analgesic not only in rheumatic, but in various other cases, with considerable effect. He did not, however, find that in this respect it was equal to antipyrine. It has been claimed for phenacetine that it has several advantages over antipyrine, such as more rapid action and an absence of disagreeable secondary effects, but according to the experience of M. Masius, though it is true that the lowering of temperature is more rapid than with antipyrine, it is of much shorter duration, besides which there is a liability to the occurrence of rigors and cyanosis, and neither its antithermic nor its analgesic action is so well marked as that of antipyrine. It has certainly the advantages of not disordering the digestion and of being cheap.—*Lancet*, March 9, 1889.

Lanolin Ointments.—DR. E. STERN recommends in the *Ther. Monatsh.* for February, 1889, the following lanolin ointments, which in his hands have given most excellent results. The first one spoken of is *Sapolanolin* ointment, composed of lanolin two and a half parts, and sapo viridis two parts. With the exception of salicylic acid, all other preparations, such as boracic acid, tar, white precipitate, resorcin, etc., can be easily added to this mixture. In eczema, mycosis, and in cases of seborrhœa with strong crust deposits such ointments will be found of great service. The following is the formula generally used by the author in psoriasis capitis:

℞.—Ammoniated mercury . . 10 parts.
Green soap . . . . 40 "
Lanolin (anhydrous) . . 50 " —M.

The action of sapolanolin with ammoniated mercury when applied to the head is as efficacious as chrysarobin upon the body. After having continued its use from three to eight days all signs of scurf will have disappeared, the affected portions will appear smooth and white and the application of some lanolin cream and daily washing with soap and water is all that will be required to give to the scalp its normal appearance. Discoloration of the skin was never observed. The author uses the following paste, which will adhere to the skin without any bandage:

℞.—Cold cream, Lanolin (anhydrous) } āā 40 parts.
Benzoated olive oil . . 20 " —M.

This forms a yellow ointment which permits of being applied to the face in thick layers. It is very adherent, wherefore the term unguentum adhæsivum would not seem out of place. To it can be added any other medicament. Should tar be added, the quantity of wax must be increased. The author uses this paste alone or in combination with boric acid and oxide of zinc in all cases in which the application of an ointment and bandage might prove of some difficulty, as for instance in the facial eczemas of children. This paste answers in these cases the purpose of maceration and of a new epidermis, so that at the end of eight or fourteen days the tar treatment may be commenced. In the squamous and vesicular varieties of eczema the addition of salicylic acid to this paste will be found of the greatest service:

℞.—Salicylic acid (finely powdered) 3 parts.
Olive oil . . . . . 17 "
Cerate, Lanolin } . . . āā 40 " —M.

For urethral injections the author prescribes the following:

℞.—Lanolin (anhydrous) . . 25 parts.
Almond oil . . . . 75 " —M.
(Basis-injection.)

or

℞.—Sulphate of zinc . . . 1 part.
Water . . . . . 9 parts.
Lanolin (anhydrous) . . 40 "
Almond oil . . . . 150 " —M.

or

℞.—Salicylic acid . . . . 1 part.
Almond oil . . . . 300 parts.
Lanolin (anhydrous) . . 99 " —M.

The injections are made with an ordinary syringe, the injected material being held from five to ten minutes in the urethra; its action is mild and not irritating. After twenty-four hours fat particles are found in the urine and this long retention accounts for the favorable action of this remedy upon the gonorrhœic processes. At the end of eight to ten days the author adds an antiseptic or astringent remedy to the injection, and ends the treatment with injections of a one and a half per cent. resorcin solution in water. Also in chronic urethritis lanolin injections are of great service.—*Wiener med. Presse*, Feb. 24, 1889.

The Medical News.

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SATURDAY, MARCH 30, 1889.

TREATMENT OF APOPLEXY DUE TO HEMORRHAGE FROM THE MIDDLE CEREBRAL ARTERY BY COMPRESSION OF THE CAROTID.

IN the *British Medical Journal* of March 2, 1889, is an extremely interesting report to the Scientific Grants Committee of the British Medical Association, by MR. WALTER G. SPENCER and PROF. VICTOR HORSLEY, suggesting that in cases of apoplexy (especially of the ingravescent form) which usually arise from hemorrhage of the middle cerebral, or its branches, that compression of the common carotid shall be employed as a means of arresting the hemorrhage, and of preventing the more serious consequences that would follow its continuance. Of course, in cases of hemorrhage from the middle cerebral, or from any other intra-cranial artery, arising from violence, in which the site of the hemorrhage could be ascertained, the proper treatment would be to open the skull and secure the vessels just as in any other part of the body. But this paper does not regard the question of traumatic hemorrhage, but of hemorrhage from apoplectic causes.

Clinically, such cases may be divided into three classes: *First*, those in which so much blood is poured out that death is immediate. *Secondly*, those in which the hemorrhage is so small that it ceases immediately. In neither of these would the proposed method of treatment be applicable. The *third* class of cases are those in which the hemorrhage is moderate at first, and continues for a longer or shorter time, during which the severity of the symptoms gradually increases, these symptoms being spasms followed by paralysis, dilatation of the pupils on the same side as the hemorrhage, and general signs of compression of the brain, followed by mechanical asphyxia and death.

The paper follows three lines of thought. First, anatomically, there is a sharp distinction between the relation the middle cerebral artery bears to the carotid, and the relation which the arteries forming the circle of Willis bear to the same vessel. The middle cerebral is not a part of the circle of Willis, but is the direct continuation of the carotid, ascending almost vertically in the fissure of Sylvius, and dividing into several branches which supply the ganglia at the base of the brain and the internal capsule. One of these—the lenticulo-striate artery—is again the most direct continuation of the middle cerebral, and is so much more frequently the site of lesions causing apoplexy that Charcot has well called it the "artery of cerebral hemorrhage." The circle of Willis, on the contrary, lies almost in a horizontal plane instead of a vertical one. Its vessels are not the direct continuation of the carotid, but are almost at right angles to its general axis, hence, the force of the blood is spent chiefly on the middle cerebral and its branches, instead of on the circle of Willis.

Secondly, pathological observations as to the site and the frequency of intracranial hemorrhages exactly tally with these *a priori* conclusions drawn from the anatomical disposition of these arteries.

Thirdly, Spencer and Horsley have now added experimental results of extreme interest and importance. The cerebral circulation in the Macaque monkey differs very much from that of the dog, rabbit, or horse, and is arranged on the same plan as in man. The animal having been etherized, the skull over the area supplied by the middle cerebral artery removed, and the dura raised carefully, the condition of the circulation and the pulsation of the vessels were first noted. The carotid on the same side was then compressed through the tissues of the neck against the vertebræ. Immediately the pulsation in the branches of the middle cerebral ceased. The vessels were not entirely emptied, but no pulsation could be seen even in the largest of them, and the cortex became distinctly paler. Relaxation of compression was followed by return of pulsation. This was repeated again and again with the same result.

Another series of experiments showed the effect of cutting off the blood supply. When a motor area is stimulated repeatedly by a Faradaic current the functional activity of that area becomes gradually exhausted, so that the minimal current which will produce movement has to be increased until at last even the maximum current is followed by no movement and complete exhaustion has been produced. Spencer and Horsley selected the centre for the angle of the mouth. When the blood supply was cut off the excitability was practically and immediately lost, but gradually returned as the circulation was restored. If compression of the carotid be continued for a considerable time, the anastomosing vessels of the circle of Willis gradually fill the middle cerebral and its branches, and the authors found that, two hours after ligation of the common carotid, pulsation in the middle cerebral was slight but not well marked, and the natural color of the cortex had been restored. When the corresponding cortical areas were then stimulated they reacted normally to minimal currents. Sudden or acute compression of the carotid, therefore, cut off the blood supply to the cortex and abolished its excitability for a time; but after the circulation had been gradually restored by anastomosis the cortex again became functionally active. This explains the immediate but temporary paresis of the face, arm, and leg which has occasionally been seen after ligation of the common carotid. Of course, the later cerebral symptoms noticed in about one-fourth of the cases, a day or two after the operation, cannot be referred to this cause, but are referable, the author thinks, to septic inflammation. While this is sometimes true, it is certainly not always the explanation. In some cases at least it is due to degenerative changes from insufficient blood supply. In cases of an insufficient anastomosis through the circle of Willis this may go so far as to produce necrotic changes.

Another interesting series of experiments—indeed the crucial ones—was made as follows: A large portion of one hemisphere of the cerebrum was exposed and a ligature was passed under the common carotid but was not tied. A rapid horizontal incision was then made in the hemisphere, so as to cut across the main trunk of the middle cerebral, the lenticulo-striate, and a number of other branches of the same artery running vertically upward, especially through the lenticular nucleus. The upper border of this incision being lifted, showed the middle cerebral and lenticulo-striate artery bleeding freely. Compression of the carotid immediately caused cessation of the bleeding. The small branches stopped usually at once, but the middle cerebral first stopped pumping, and then oozed freely. Soon the hemorrhage was arrested by a clot which, in from one-half to three-fourths of a minute, stopped all hemorrhage from the middle cerebral itself. Compression of the carotid was maintained two minutes and then released. The middle cerebral pulsated plainly under the thin clot covering its mouth, but no recurrence of the oozing ever occurred. The clots were then raked from the mouths of the vessels, which began to bleed as freely as before, when renewed compression was followed by renewed arrest of the hemorrhage. This could be repeated again and again. If the carotid was compressed before cutting the vessels across, only oozing occurred. This stopped as quickly as before. Raking the clots from the mouths of the vessels, the carotid being still compressed, only slight oozing took place, and was speedily arrested.

The authors propose that persons who are instructed in "first aid" to the injured should be taught to compress the carotid in cases of supposed apoplexy. They point out that the only confusion of a diagnostic character likely to occur would be between apoplexy and embolism or thrombosis; but very properly they call attention to the fact that compression of the carotid would not have any unfavorable influence in case of such a mistake in diagnosis. It is, however, chiefly to physicians that we must look for the use of this method of arresting cerebral hemorrhage or of limiting its ravages. The authors propose that, if time and opportunity allow, the carotid might be temporarily compressed by exposing it, passing a stout ligature under it, and then drawing the vessel against the finger by the ligature. In such a procedure the wound must be kept aseptic, of course, and the pressure must not be sufficient to injure the internal coat. Certainly, however, we cannot expect that many cases will give time, opportunity, and an antiseptic surgeon for such operative procedure, and the usefulness of the proposed compression of the carotid will be limited to a very small number of cases most favorably situated. It is a very possible thing, however, that in some cases of very severe hemorrhage or of high vascular tension, as well as in other directions as yet uususpected, that these very interesting experiments may bear fruit. In another class of cases we would suggest that occasionally temporary compression of the carotid may

be of value, viz., in those cases of intense headache in which apoplexy is threatened, or in which the patient's discomfort is extreme. Not only, however, does compression of the carotid influence the circulation in the brain, but, as the late Prof. S. H. Dickson frequently showed his friends in his own person, by compression of the carotid he could at will reduce his pulse at least twenty beats in the minute—a result that followed the compression almost immediately. Probably, however, this was a personal idiosyncrasy; but it is one worthy of further investigation.

SULPHONAL.

So much has been written and said in society meetings as to the value of sulphonal as a hypnotic, that it would seem to be impossible to add anything more to the subject, save by reporting more cases in which it has done good. One of the best summaries of all that has been done has been gathered together by Kronfeld and Löwenthal of Prof. Meynert's clinic, and, in addition, they detail quite a number of cases for themselves in the *Wiener klinische Wochenschrift* of January 10, 1889. Their patients seem to have suffered from almost everything that can produce sleeplessness, from old age to uterine cancer, a very large number of nervous cases being included, of a functional and organic character. The drug was given at about seven in the evening, and nearly always with the effect of causing sleep.

In *Nouveaux Remèdes* of January 24, 1889, are given the records of a meeting of the Société de Thérapeutique, held on January 8, 1889, at which Constantin Paul stated that sulphonal was the equal of chloral, and that it produced sleep with unusual speed and certainty. The report of Huchard was not so good, for while he found that it quieted patients, they did not always sleep, and this was so particularly in phthisis. He believes it to have little if any analgesic properties, and that the sleep produced generally lasts from four to eight hours after large doses. Huchard asserts also that it produces its most agreeable effects in essential insomnia. He does not believe that it is superior to chloral.

It is stated that the Board of Regents of the University of Michigan will ask the State Legislature for $50,000, to which will be added $25,000 by the city of Ann Arbor, for a new hospital building, with a view to increase the clinical facilities in connection with medical teaching at the University.

The fortieth annual meeting of the American Medical Association will be held at Newport, R. I., on June 25th, 26th, 27th, and 28th, under the Presidency of Dr. W. W. Dawson, of Cincinnati. Dr. Horatio R. Storer, of Newport, is Chairman of the Committee of Arrangements. In connection with the meeting there will be held an exhibition of medical books, appliances, drugs, etc.

The annual session of the Medical Association of the State of Mississippi for the current year, will be held in the City of Jackson, commencing on April 17th, at noon, and continue three days.

The South Carolina Medical Association will hold its next annual meeting at Charleston, S. C., on Wednesday, April 24, 1889. An address will be delivered by Dr. Robert Battey, of Rome, Ga.

The Lomb Prize Essay on "Practical Sanitary and Economic Cooking for Persons of Small Means," has been awarded by the American Public Health Association and will soon be issued, the value of the prize this year amounting to $500. The Secretary of the Association writes that the prize committee regard the essay as of unusual merit, and asks that it be not unfavorably prejudged by those who have seen the mutilated reprint of it in one of the daily papers of New York City.

The Royal Medical and Chirurgical Society, of London, has just purchased a large house in Hanover Square, which is said to be admirably adapted to the Society's wants. The property will be at once altered, and in all probability before the end of the year the Society will abandon its old quarters in Berners Street for its new and more commodious building. The Society's library now numbers 31,320 volumes.

The Emperor of Austria has conferred on Pasteur the order of the Crown of Iron, which gives him the right to the title of Baron and the insignia of nobility.

A cablegram from the Hague, dated March 25th, announces the death of Professor Francis Cornelius Donders, the eminent ophthalmologist, aged seventy-one years. Donders was born at Tilburg in Brabant, May 27, 1818. He studied medicine at the Military Medical School at Utrecht, became

military surgeon at the Hospital of the Hague and afterward professor at the Utrecht school. Called to the University of the same city, he was successively professor of histology and physiology, and then of ophthalmology, to which was added the clinic of diseases of the eye. In 1863 the government voted him a sum of money to construct a physiological laboratory corresponding to the needs of modern science. His researches on the "Anomalies of Refraction and Accommodation" placed this most important branch of ophthalmology upon a scientific basis and gained for its author a world-wide reputation. Donders was elected a member of the Institute of France in 1879, and he was also a member of many of the scientific societies of the world.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 21, 1889.

THE PRESIDENT, ALFRED L. LOOMIS, M.D., IN THE CHAIR.

DR. M. ALLEN STARR read a paper on

THE PHYSICS AND PHYSIOLOGICAL ACTIONS OF ELECTRICITY.

(See page 339.)

DR. LANDON CARTER GRAY then spoke on

THE EFEECTS OF ELECTRICITY IN CENTRAL NERVOUS DISEASES.

Before commencing, he stated that theoretically he entirely agreed with Dr. Starr in the position that he took, but as to practical results he differed very greatly from him, since he had reason to be well satisfied with those he had met with in sixteen years of daily experience. Dr. Starr had said that electricity could by no means be administered with the same certainty of effect as opium, for instance, but his experience had taught him that it could. In certain conditions he was just as confident of securing relief by the use of electricity as in others he might be by the employment of opium or quinine. Among them might be mentioned some forms of neuritis and of neuralgia of the trunks and extremities, some simple forms of neurasthenia, and also certain morbid symptoms of some of the organic diseases, although he would not have it understood that he claimed to cure the organic disease itself by this means. A great deal depended, he thought, on the way in which the electricity was administered, and he had never yet seen a dispensary which was properly equipped with apparatus for its careful and scientific use. Among the essentials requisite for this cure were a more or less constant cell (an absolutely constant one could hardly be obtained), a milliampèremeter, and a rheostat. Until within quite a short time the employment of electricity in America had been almost entirely empirical.

He had been in the habit of employing electricity in two classes of central diseases: *first*, the insanities, and, *second*, gross diseases of the brain. In the insanities which he had designated as functional, it had proved of great service in the convalescent stage, but he never employed it in the acute stage of such affections. Among the forms of insanity in which it was beneficial were melancholia, mania, etc. In speaking of the use of electricity in gross diseases of the brain, he referred particularly to intra-cranial syphilis. In the early stage of headache, before paralysis occurred, it was often very useful; as sometimes also in the later stages, after the occurrence of hemiplegia. In *tic douloureux* its action was somewhat uncertain, but its employment was sometimes attended with benefit. He wished to state, however, that he had no faith in the value of static electricity, except as regards the moral effect of its application in certain hypochondriacal cases or others where a strong mental impression was desirable.

The insanities were concerned only with intra-cranial conditions, and were best treated by means of galvanism. The gross disease of the brain, on the other hand, had two great classes of symptoms, *first*, cerebral, and, *second*, those both cerebral and peripheral. For the cerebral symptoms galvanism was best adapted, and for the peripheral, faradization. In employing central galvanization great care should be used to avoid anything like a shock or the production of flashes of light; and from one to two milliampères was usually all that could be comfortably borne by the patient. At first the sittings should not last more than three minutes, and in discontinuing the application the current should always be very gradually diminished. In applying faradization for peripheral symptoms the motor points could be readily picked out. The question naturally arose: Which pole of the battery should be used? It was an unquestionable fact that there were marked chemical and physiological differences in the action of the two poles, but as to their practical effects in the system from a therapeutic point of view, he was free to confess that he had never been able to convince himself that there was any advantage in one over the other. The only rule that he could lay down was, that if one pole did not suit the case, try the other, and if the other produced no better result, to abandon the use of electricity altogether.

In general paresis electricity was of no service, but in some cases of cerebral syphilis, where the symptoms were difficult to distinguish from those of general paresis, it was often of great benefit. In cases of hemiplegia without contracture it was also beneficial.

DR. W. R. BIRDSALL spoke of

THE EFFECTS OF ELECTRICITY IN DISEASES OF THE SPINAL CORD.

As to organic diseases of the cord, he said that he agreed with Dr. Starr in his doleful picture, only he could apply it to other therapeutical means as well as electricity, and consequently he thought the statements of the paper were an injustice to the latter agent. When we considered the condition present (this being a class of diseases that were practically incurable), we should not expect too much. Like Dr. Starr, he had never seen a case of such organic disease cured by electricity; but he would go further, and say that he had never seen a case cured by any other means. But at the same time he had

often seen the use of electricity attended with good effects in these cases. We had to treat the symptoms, the pain, the spasm, the paralysis; but as to removing or shortening the process underlying the symptoms, it was certainly difficult to point to any agent whatever that would accomplish this result.

The rule might be laid down that electricity is not to be resorted to in any acute inflammatory condition. Here it was liable to do harm, instead of good, and, as a rule, it should not be employed in inflammatory affections at all. As to the effect of electricity upon the system, it seemed to him that it was that of a stimulus. While clinical experience appeared to favor the idea that we can accomplish more with the anode than with the cathode, practically he thought there was but little difference between the two. In using electricity in any form, it was important that both the immediate and the after effects should be taken into consideration, and he believed that we really know more about the effects of this agent than even about those of the most familiar drugs. But neither in the case of drugs or of electricity could we always tell what the ultimate effects would be on the system.

He believed himself that a large share of the electricity was reflex in character. For this reason an argument could not be raised against the use of statical electricity because its local action was superficial, and he considered it an agent of decided force. When we come to consider the effects of electricity upon the spinal cord, he agreed with Dr. Starr that by the ordinary means of applying it only full currents acted upon the cord; yet, at the same time, he could not doubt that powerful effects often resulted. It was a fact that when one electrode was placed at the nape of the neck and the other upon the arm, and a current of twenty milliampères was used, a flash of light could be produced; showing that the optic apparatus had thus been indirectly affected. The tissues of the head were thus implicated, although the current did not pass directly through them. The resistance of the skin to the passage of the current was greater than that of any of the other tissues. The main effects on the spinal cord, he believed, were the peripheral effects. In tabes he had seen relief from pain to a moderate degree afforded by electricity, but had never known any effect to be produced upon the ataxia. In certain cases, however, he had seen some improvement in spastic conditions, and in this connection he referred to a case where the spastic condition followed upon transverse myelitis. The best effects were noticed in instances where the structural changes were not complete, and the nutrition of the muscles was not too greatly impaired. In facial paralysis and head paralysis, he had often seen great improvement take place under the use of galvanism. The principal effects to be hoped for from electricity were improvement of paretic conditions, relief of pain, relief of spasm in certain instances, and the benefiting of functional derangements.

Dr. A. D. Rockwell then read a paper on

THE EFFECTS OF ELECTRICITY IN PERIPHERAL NERVE LESIONS.

The best results from electricity, he said, are met with in functional disorders; but even here discrepancies are often met in different cases, and a brilliant result obtained in one patient might be followed by comparative failure in another apparently suffering in the same way. Facial paralysis was among the more important peripheral nerve affections, and in a large number of cases he had seen great benefit derived from electricity. In others, however, he had been disappointed in his results. It was proper to inquire, therefore, (1) Does electricity sensibly hasten recovery in peripheral nerve diseases? and (2) in what cases is it to be tried? In many cases of diminished farado-muscular contractility with increased galvano-muscular contractility but little benefit was derived from electricity. As to facial paralysis, if the portion of the nerve external to the Fallopian canal alone were affected, marked relief would be apt to attend the use of electricity; but if the portion of the nerve lying within the bony canal were compressed by inflammatory products not much could be expected from it. In diphtheritic paralysis he had often found it of very great service.

Dr. E. D. Fisher read a paper on

THE EFFECTS OF ELECTRICITY IN FUNCTIONAL NERVOUS AFFECTIONS.

In functional disorders, he said, we had to assume a molecular or fine nutritional change, and in electricity we had an agent which acted as a stimulant to the normal functions when these were functionally deranged. In this class of affections much, then, could be accomplished by it, and it was to experience that we look in order to appreciate its true value. In static electricity, with which he had had considerable practical experience, we had an agent ordinarily well adapted to stimulate the surface, and he had found it of considerable service in the treatment of such conditions as cerebral and spinal neurasthenia, chorea, etc. While faradization was also often of advantage, the greatest benefit to be derived in this class of cases in general was from galvanization. Physiological data, borne out by clinical data, would seem to sustain the positive value of electricity in functional diseases.

He would not discard the use of statical electricity altogether, as he believed it had its place in the list of therapeutic agents of advantage in functional diseases, where the trouble was nutritional, and not organic.

Dr. M. P. Jacobi made some remarks on the treatment of uterine fibromata by means of electricity, and said that he had been very much disappointed in trying to get out accurate statistics from which some definite conclusions as to the value of this method might be based. In the report of the hundred cases of Apostoli published four years ago there was much that was open to criticism. The data given were often meagre and unsatisfactory, and all the cases were reported cured as the symptoms were relieved. Keith, who was so impressed by the results of Apostoli's treatment which he observed in Paris that he stated that he would never advise laparotomy in any case of this kind until a thorough trial of electricity had been made, reported that he had made twelve hundred applications in one hundred cases, the majority of which were fibroids. He did not, however, give any accurate statistics, but merely stated that the tumors were reduced in size and that the cases were mostly relieved. After Apostoli and Keith the largest number of cases had been reported by Everett in the *New York Medical Journal*, in the paper which was doubtless familiar to

all present. There were seventeen cases in all; but six of them were either situated very near the mucous membrane or else were polypi. Faradization and galvanism were employed until the tumors protruded into the uterine cavity and they were then removed by operation. Another series, of sixteen cases, was reported by Webb, an Englishman, and three of these, which were of remarkable interest, he mentioned particularly. All Webb's cases were treated with galvano-puncture, although the procedure differed materially from that advocated by Kimball and Cutler some years ago. The puncture was always made through the fornix, and the needle was inserted but a short distance. In addition, galvano-cauterization of the interior of the uterus was practised.

DR. GEORGE W. JACOBY looked upon the whole subject of electro-therapeutics very decidedly from the standpoint of Dr. Starr in his paper. In employing electricity we are dealing with physiological effects of which we know very little. When one good observer told us that he had seen cures in certain diseases produced by it, and another equally good observer told us that he had never seen any benefit derived from it in the same affections, it was certainly difficult to arrive at any positive conclusions regarding the utility of this agent.

DR. L. PUTZEL said that the great trouble was that we do not take into account the natural history of the diseases in question. He agreed with Dr. Starr in the main, although he did not believe that the latter would wish that his paper should be regarded as a full statement of his views. He certainly did not believe that electricity could cure organic troubles, but at the same time he thought there could be no doubt that it often did relieve symptoms. Dr. Gray had expressed the opinion that the reason that better results with electricity were not obtained by many, was because it was given empirically; but in the present state of our knowledge he did not think it could be used in any other way. In order to get some idea of the practical value of electricity, we should compare cases treated by electricity with the same class of cases treated by other remedies, and left untreated. There was one point which rendered it difficult to say just how far any benefit observed was to be attributed to electricity, and this was that no disease was treated with electricity alone.

In the treatment of varicose veins he had found that the faradic current was of very great practical benefit. This he had discovered accidentally in a case of hemiplegia; and while the hemiplegia, for which the electricity was employed, remained unimproved, the varicose veins were cured by it. In this affection a good result might be expected if the veins were not too sinuous or not too greatly dilated. In applying the current it was his practice to begin at the lower part of the leg.

DR. JOHN H. GIRDNER believed that the electrical condition of the body in health and disease was a matter of great importance. In the action of the instrument which he had described two years ago for detecting the exact location of a bullet or other metallic substance embedded in the tissues, there was, he believed, a distinct electrical current taken from the body. More recently he had substituted for the telephone an electrometer, and for the probe another cell. He then exhibited zinc and copper rods adapted for introduction, the one into the mouth and the other into the rectum, to which wires could be attached, and said that by means of this device he had succeeded in getting a current from the body of the strength of one-fifth of a milliampère. He had thought at first that this electrical action might be due to the fact that one of the cavities into which the rods were introduced was acid and the other alkaline in reaction; but subsequent experiments had demonstrated that the current was produced entirely independent of the chemical reaction of the oral and rectal cavities.

In health, therefore, he believed that there was a constant electrical condition of the body, since by the means indicated we could undoubtedly develop a current which could be measured. He was convinced, also, that this electrical condition was different from what it was in health; or, in other words, that the electrical condition varied in health and disease. When we are able to ascertain just what these varying conditions were, we might perhaps be able to introduce into the system some kind of current that would be directly beneficial. This was a subject in which he was deeply interested, and in regard to which he was at present pursuing investigations which he hoped at some future time to embody in a paper to be presented to the Academy. He would only say, in conclusion, that he believed the time would come when in the treatment of disease it would be regarded as important to know the electrical condition of the body as it was to know the temperature.

DR. PETERSON said that for some time past he had been engaged in a series of experiments having in view the production of local anæsthesia by the introduction, through the cataphoric action of electricity, of cocaine and aconitia into the subcutaneous tissues. In many of the severer forms of neuralgia of the peripheral nerves which resisted other means of treatment he had used this method with decided benefit. By means of it he had succeeded in securing complete relief from pain for from five to eleven hours at a time. He did not believe, however, that it had any curative action, its effects being merely palliative.

DR. WILLIAM H. THOMSON said that the difference between the galvanic and the faradic current was, in his opinion, very material. The one possessed a powerful chemical action, and the other did not. He agreed with Dr. Starr as to the feeble powers of the galvanic current. On the other hand, the faradic current had a powerful stimulating effect upon all the bloodvessels situated between the two points where the electrodes were applied. In head paralysis he thought there was nothing that would drive the blood directly into the small muscles like the faradic current properly applied. The utility of this current in promoting absorption was also very great, as pointed out many years ago by Graaf and Langenbeck, the latter of whom used it with the most happy effects in an adenoid tumor of the neck. In his hands it had proved of the greatest possible service in the removal of exudations, and he constantly employed it in such affections as chronic muscular rheumatism, enlargement of the liver and spleen, and chronic effusion into the pleura. He should be very sorry, he said, to have his faith shaken in the efficacy of electricity in promoting absorption.

DR. ANDREW H. SMITH said that there was one condition in which he had found static electricity more promptly efficacious than any other agent with which he was acquainted, and that was muscular stiffness from exposure to wet or cold. Usually one application was

all that was required for its complete relief; but occasionally a second application was necessary. In regard to Dr. Girdner's device for procuring an electrical current from the body, he believed that the explanation of the production of the current was simply that a cell was created within the body by the means employed.

Dr. Starr, in bringing the discussion to a close, said that it seemed to him that the discussion had been unfavorable to many of the claims for the use of electricity made by many of the text-books. Gowers was the first to express the truth in regard to the effects of this agent, and he believed that he was entitled to credit for the bold and candid position that he had taken. While some of the speakers had taken a different view, there had been a pretty general consensus of opinion that these claims of cures by electricity were greatly exaggerated and without any adequate basis in fact; and he believed that this consensus would have weight with the profession at large as coming from this Academy. It was time that our physicians knew the truth about the matter, for patients were constantly being sent to this city at great expense and inconvenience expressly to be treated for electricity, when they could be just as efficiently treated by other means at home.

He thought that one very important point had been acknowledged by Dr. Gray, and that was that we do not know any therapeutic difference between the two poles. As it was a well-established fact that there was a very material difference in their chemical and physiological action, it seemed to him that the fact that there was no difference between them therapeutically showed that electricity was of but little value as a remedial agent. As to hemiplegia not followed by contracture, which Dr. Gray had claimed to cure by electricity, this was a condition in which recovery always occurred in the course of time, whether any treatment was adopted or not. It was acknowledged by all, however, that the growth and nutrition of muscles were promoted by electricity, whether of the galvanic or faradic variety; and this was well illustrated in the case of Dr. Thacher's to which he had referred. Diphtheritic paralysis, which Dr. Rockwell said could be cured with electricity, was another form of paralysis which always recovered of itself.

He wished to take exception to one statement made by Dr. Rockwell, viz., that faradic electricity acted on the intra-muscular nerves and that galvanic electricity acted upon the nerve trunks, and hence that a degenerated muscle failed to act to faradism. Both currents act on both parts. There is no essential difference in their action. But the reason faradism fails to act on a degenerated muscle is *not* because the intra-muscular nerves are diseased, but because the rapidity of the change of electrotonic state is too great in the faradic battery to elicit the contraction in a degenerated muscle or nerve. If a single shock of a faradic battery alone be given to a degenerated muscle it will react just as it does to an interrupted galvanic shock. It is the rapid alternation of shocks usually produced in the faradic apparatus to which the muscle is incapable of responding.

Dr. Fisher had also made two statements from which he must positively dissent. He had said that the nervous system was the best conductor; on the contrary, it was a very poor conductor. Again, he had said that the sympathetic was very easily affected by electricity; while, in reality, it was very difficult to do so, requiring a current of great strength, as was proven by the difficulty in producing pupillary contraction by galvanizing the cervical sympathetic. He agreed with Dr. Jacoby that it was very difficult to judge between different observers when their experiences were directly contrary to each other. Under these circumstances the consensus of opinion alone can decide. He was entirely willing to acknowledge the power of electricity in absorbing exudates, referred to by Dr. Thomson. Anything which would increase the circulation and improve the nutrition of the part would prove of service in this respect. He believed, however, that Dr. Thomson would get better results if he would employ the galvanic instead of the faradic current for the object named, since its catalytic action would aid the process. Dr. Starr agreed with Dr. Smith as to the explanation of the electrical current produced in Dr. Girdner's experiment.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 28, 1889.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. F. X. Dercum reported the following case of

SUPRA-DURAL HEMORRHAGE.

The patient was a man, thirty to thirty-five years of age, brought to the Philadelphia Hospital early one morning in December by the police patrol, he having been found lying upon an open lot. He was totally unconscious: temperature subnormal, registering at one time 95°; face flushed and dusky; breathing labored and stertorous, and at times resembled the Cheyne-Stokes respiration. The lips and cheek of the right side were puffed in and out and the right nostril dilated. The left side seemed normal. The mouth was not distinctly drawn. Both hands and arms were firmly flexed and crossed over the chest. They were decidedly rigid. The legs were also fixed in extension with some turning in of the feet. The head was turned to the right, a marked effort being required to rotate it toward the opposite side. The right pupil was widely dilated, while the right eye was directed outward, as though held there by spasm of the external rectus. The left pupil seemed unaffected. Both were insensitive to light. No response was evoked by irritating the conjunctivæ, and this was also true of the skin over the entire body. The arms could be partially extended, and occasionally jerking movements were observed in them.

The patient vomited freely, the ejecta smelling decidedly of whiskey. The urine, obtained by the catheter, contained no albumin. The pulse was weak and intermittent. A small scratch or abrasion was found to the right and above the occipital protuberance. It had bled little, if at all, and seemed very insignificant. No bleeding had occurred from either the ears or nostrils. The man's condition remained unchanged for several hours, but he gradually grew weaker as the day progressed, and finally died.

Autopsy: Beneath the bruise previously observed the inner surface of the scalp and the periosteum were ecchymosed. No fracture of the skull was, as yet, apparent, and no depression existed. On removing the calvarium, however, and examining its inner surface, a fracture was

detected beginning a little in front of the lambdoid sutures and extending obliquely outward across the serrations of the latter. It was evidently a fracture of both tables, and on the outer surface was now observed to be about an inch in length and linear in shape. The fracture of the inner table was much more extensive. It extended in three directions, the most complete break being along the line of the lambdoid suture.

Lying upon the dura an immense clot was found upon the side of and beneath the fracture, and situated over the lateral aspect of the superior and inferior parietal lobules, the first and second temporal convolutions, and the anterior extremity of the lateral aspect of the occipital lobe. The anterior limit of the clot was about one-half to one inch back of the fissure of Rolando, while its posterior limit was from one-half to one inch from the apex of the occipital lobe. In its middle portion the clot was fully an inch, if not more, in thickness.

An examination of the base of the brain revealed numerous ecchymotic spots and areas in the pia and arachnoid. Similar appearances were observed in the brain almost everywhere. No hemorrhage existed in the ventricles or ganglia. On the ventricular surface of the right caudate nucleus was an area of very superficial yellow softening one-half inch in length, one-fourth inch in breadth, and three or four lines in depth.

The fact of the limbs being rigid in contraction suggested semi-conscious resistance, and also the fact that the man was vomiting matter smelling of whiskey suggested that he was drunk. He undoubtedly was drunk in addition to having the extra-dural hemorrhage. The diagnosis was also complicated by the presence of specific scars over his person, thus suggesting a specific cause for the inequality of the pupils. I, however, could not free my mind from a suspicion of hemorrhage. I thoroughly examined the scalp, but did not feel at the time that the slight scalp wound was sufficient justification for trephining, but I think now that exploratory trephining would certainly have been rewarded. In explaining the symptoms in this case, it seems to me that the absence of hemiplegia was due to the fact that the clot was not directly over the motor area. The general rigidity is, probably, to be explained by irritation of the dura. The dilatation of the pupil was probably due to direct pressure.

DR. CHARLES K. MILLS saw this man for a few minutes on the morning that he was admitted, and expressed the opinion that the case was one of hemorrhage. The case is an important one, as it clearly confirms the diagnostic marks of Jacobson and others for supra-dural hemorrhage. Looking over the cases which he had collected for the paper read at Washington, he found a number in which the symptoms correspond somewhat closely to those described to-night. The dilatation of the pupil—the oculo-motor paresis—is so common that Jacobson suggests that it be called Hutchinson's pupil. it having first been described by that observer. He examined the oculo-motor nerve very carefully in this case at the autopsy; it did not differ from the other nerves at the base. He, therefore, thought that the dilatation of the pupil was the result of pressure. A considerable amount of pressure would be exerted on the entire hemisphere, and a clot in the position indicated might possibly cause paresis of the oculo-motor nerve by counter-pressure. He believed that in a case presenting these general symptoms, with paresis on one side, and suspected injury even without the external evidences present here, we would be justified in trephining over the parietal lobe, as has been done by Kronlein and others in such cases.

HEMORRHAGIC PACHYMENINGITIS.

DR. FRANCIS X. DERCUM, in a series of seventy-seven autopsies, the records of which, and the specimens of membranes of which he went over very recently at the Insane Hospital at Norristown, found twenty-eight cases presenting hemorrhagic pachymeningitis. In these twenty-eight cases there were four in which there were gross lesions, that is, there were large hæmatomata; in the others, there were fibrinous patches. Some of the patches were stained very slightly, while others were quite dense and heavily stained; all were more or less stained.

The frequency of the occurrence of this affection in the chronic insane is exceedingly interesting, and suggests that this hemorrhagic or *fibrinous* pachymeningitis, as it is perhaps better called, is an inflammation, so to speak, normal to the dura—*i. e.*, if we have a simple inflammation of the dura, it is always an inflammation with fibrinous exudation, with or without the formation of vessels. Looking over the recent publication of Hirt on nervous diseases, he found that, under the head of inflammation of the dura, in which he is supposed to consider only simple inflammation, he speaks only of internal hemorrhagic pachymeningitis, evidently considering this *the* inflammation of the internal dura, thus regarding all other inflammations as special forms.

DR. A. ESHNER, through the courtesy of Dr. Hirst, reported the following case of

HEMORRHAGE INTO THE CENTRUM OVALE OF THE POSTERO-FRONTAL AND PARIETAL LOBES.

E. L., an unmarried Englishwoman, aged thirty-three years, was admitted to the hospital December 18, 1888. She stated that she had been blind for three weeks. The ability to discriminate light remained. There was a moderate degree of anasarca, and examination of the urine disclosed a considerable amount of albumin, with hyaline and granular casts of the uriniferous tubules. On December 20th the external measurements of the maternal pelvis were made, the diagnosis of pregnancy confirmed, and the presentation and position established. The fœtal heart-sounds, however, were not detected. Upon the direction of Dr. Hirst, a hot-air bath was ordered, and the removal of the fœtus, which it was conceived was dead, was contemplated. Shortly preceding this examination, on December 20th, at about five o'clock in the afternoon, the woman developed a comatose condition, with stertorous breathing. She had sat up in a chair during the morning, had taken milk and medicine, and, in response to inquiries, had stated that she was feeling better than hitherto. The night before, she is said to have sat up in bed and combed her hair, though a neighboring patient observed convulsive muscular contractions of the arms and shoulders. Soon after the condition of coma was noticed, the patient was yet able to swallow and respond to calls. She made complaint of the disagreeable taste of the medicament which she was taking. She was given milk again at 9.30 P.M. and at 1.30 A.M., and medicine at 10.30 P.M. Urine was passed once, and the bowels moved twice involuntarily. She grew worse

during the night, and Cheyne-Stokes respiration set in. While preparations for a second hot-air bath were being made, at about 4.30 A.M., December 21st, the woman vomited a not large quantity of bloody fluid and expired. Unfortunately the nervous aspect of the case was not carefully studied. It is known, however, that the patient was able to move the right upper extremity until within a short time prior to death. On the night before, she appeared to have been oppressed by a sensation of subjective heat, as she removed the bedclothing from the chest.

The autopsy was made, under the direction of Dr. Mills, thirty-six hours after death. The only abnormal appearance on the surface of the brain was a large area of discoloration over the posterior part of the first and second frontal convolutions, at their junction, reaching, in the same plane, over the two ascending convolutions. On opening the right lateral ventricle, an irregularly shaped, longitudinal clot, about one inch or more in length, was found lying loosely in the cavity. This clot communicated with another, or with another portion of the same clot, which lay in a cavity which appeared to exist in the white matter external to and above the ganglia. Examination showed the ventricular surfaces of the caudate nucleus and optic thalamus entirely intact. The septum lucidum was not broken down, nor was there any blood in either the third or the left lateral ventricle. In fact, the entire left hemisphere appeared normal. A large section through the middle of the ganglia on the right side and the parietal lobe revealed a clot of the size of a lemon, confined to the white matter of the posterior frontal and parietal regions—the white substance of the corona radiating between the ganglia and the following convolutions: the posterior portions of the first, second, and third frontal, both ascending, and the superior and inferior parietal. Transverse sections in various situations through the ganglia showed no lesion. The ganglia were intact.

Hemorrhages into the centrum ovale and the cortex cerebri are relatively infrequent, though next in frequency of occurrence to those into the ganglia, which hold the first place.

Nothnagel, in Ziemssen's *Cyclopedia*, states that hemorrhages into the medullary substance may be wholly unattended with evidences of cerebral disease. In some cases an apoplectic seizure may occur, followed by complete recovery. In others there may be the usual evidences of hemorrhage, with or without apoplectic symptoms, followed by disorders identical with those following lesions of the corpus striatum. The symptoms of hemiplegia may be present and subsequently entirely disappear. This is perhaps the most characteristic feature of hemorrhage into the region under consideration.

Vasomotor disturbances and alterations of sensibility are sometimes present. Contractures are rarely noticed. The symptoms arising from affections of the centrum ovale bear the closest resemblance to those produced by disease in the corpus striatum.

Gowers states that hemorrhage into the centrum ovale causes symptoms similar to those due to a cortical lesion in the corresponding situation, but without the symptoms of irritation. Large hemorrhages usually spread into the centrum ovale from the corpus striatum. The vessels in the white substance are small and give only small hemorrhages.

DR. WM. OSLER said this case illustrates one of the conditions which in the pregnant woman may lead to hemiplegia or fatal hemorrhage. True apoplexy occurs most frequently in association with Bright's disease, and may come on during, or even be mistaken for, a uræmic attack. A specimen very similar to the one here shown is in his collection of brains in the Museum of McGill College—massive intraventricular hemorrhage. Rupture of a cerebral vessel during labor is, he believed, rare. A second more common event is embolism of one of the cerebral arteries during parturition. Aphasia is very often associated, and in a majority of the patients old mitral disease exists. In a limited number of cases a third condition is present—thrombosis of the cerebral vessels, due possibly to blood conditions which favor coagulation.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, March 18, 1889.

THE PRESIDENT, CHARLES S. WOOD, M.D., IN THE CHAIR.

DR. J. LEWIS SMITH read a paper on

THE CAUSE, MODE OF PROPAGATION, AND PREVENTION OF DIPHTHERIA.

Each year of recent investigation, he said, has strengthened the belief that the cause of diphtheria is a microbe; but it is still a matter of doubt which microbe is the causal agent, or whether there may not be more than one species of bacteria which by their action upon and in the tissues produce the disease. Having referred to the researches of Oertel (published in 1868 and 1874), Cohn, Eberth, Klebs, Senator, Billroth, Curtis and Satterthwaite, he said that the important observations and opinions expressed by Drs. Curtis and Satterthwaite in 1877 as the result of their investigation, under the auspices of the New York Board of Health, of the etiology and pathology of diphtheria, evidently prepared the way for the theory that the bacteria themselves are not the cause or the infectious principle of the disease, but that chemical substances, or ptomaines, produced by the agency of the bacteria, may be.

He then went on to speak of the more recent investigations of Wood and Formad, Klebs and Löffler, Cheyne, von Hoffman, Wellenhof, and Oertel; and stated that the latter, who was one of the earliest advocates of the theory of the microbic origin of diphtheria, now admits that the causative action of bacteria, though plausible, is not proven. The purpose of Oertel in his recent investigations has been to ascertain, if possible, the nature of the diphtheritic virus by a close and minute study of the lesions or anatomical changes which it produces; and the following is a summary of his present views. The nature of the virus is still obscure. It acts upon cells, causing their death and disintegration, and the infected particles convey the virus to other cells. The virus causes hyaline-degeneration in the tissues. The hyaline degeneration in the walls of the bloodvessels causes them to rupture, producing hemorrhages. The unequal amount of hyaline change in different parts of the vascular apparatus may be attributed to difference in resisting power or unequal exposure to the infected blood. Secondary inflammatory processes in the lungs, heart, liver, kidneys, and central and peripheral nerve-tissues must arise from the infec-

tious property of the blood circulating in them. He expresses the opinion that bacterial organisms cause diphtheria, and that they do so, not by their direct action, but by producing a ptomaine which infects the system and causes the disease to be constitutional. The microbe itself is mostly confined to the surface, where the action of the virus is widespread and deep. The most eminent pathologists of the present time, said Dr. Smith, do not express any more positive opinions in reference to the action of the specific principle or germ of diphtheria.

At the recent meeting of the London Epidemiological Society, Dr. M. W. Taylor stated his belief that common mould might sustain a causal relation to diphtheria, citing several instances which apparently favored this hypothesis. The theory that organisms which are commonly present in ordinary mould can produce diphtheria Dr. Smith thought improbable, however, since mould is common in all damp localities, where there is no diphtheria as well as where the disease is present; and he believed that the cases referred to by Dr. Taylor were explainable in other ways. The specific principle must be introduced from without, but if it obtain a lodgement upon the wet and mouldy surface of any filthy accumulation, it may find there a nidus favorable for its development. The fact appears to be fully established, as would be shown later on in the paper, that the diphtheritic virus is frequently propagated in foul and damp localities, apart from the animal tissues and independently of the sick. He repeated, therefore, that the theory of the causation of diphtheria which is gaining acceptance throughout the world is, that it is produced by a specific microbe or microbes, whose action is chiefly on the surface, or at no great depth, and that blood-poisoning occurs mainly from a ptomaine or ptomaines produced by microbic agency. In order to obtain a knowledge of the ptomaines, chemistry must aid microscopical investigations. During the past year Dr. T. Mitchell Prudden, whose care and trustworthiness in pathological research are universally recognized, has been making a series of elaborate investigations, the results of which will shortly be published in the *American Journal of the Medical Sciences*, and which seem to indicate the strong probability that the specific microbe of diphtheria is a streptococcus.

Mode of propagation. No fact is better established than that diphtheria does not arise *de novo*. Like the eruptive fevers, it is produced by the reception in or upon some part of the system of the preëxisting specific poison. The extreme contagiousness of diphtheria from person to person is well known, and the virus adheres tenaciously to objects on which it happens to alight. The clothing of a patient, even when the disease is of the mildest form, his bedding, the furniture of his room, and the objects which he handles may for weeks afterward communicate the disease. Dr. Sternberg, in his recent Lomb Prize Essay, also alludes to the fact that all damp, foul floors, such as sewers, cellars, and ill-ventilated spaces under floors, afford conditions favorable for the development and propagation of the diphtheritic virus. The virus, whatever its nature, once received, may be propagated in such a place for an indefinite time, and, ascending in the vapors which arise from this culture-bed, it is liable to communicate the disease to anyone who inhales it. Thus, in New York city, prior to 1850, although foul sewers and insanitary conditions existed, there was no diphtheria; but in the decade following 1850 the disease was introduced. Its germ made its way into the sewers underground, and now wherever sewer-gas escapes into the domiciles of the city it carries with it the diphtheritic virus. The amazing vitality and power of propagation of the diphtheritic poison are apparent when we reflect that it has permanently infected the New York sewers; so that children in all parts of the city are constantly falling ill with the disease, contracted by inhaling sewer-gas, which, notwithstanding "sanitary plumbing," often escapes from unsuspected sources. It is chiefly by exposure of children to the emanations from this widely extending culture-bed, and to walking cases, often so mild that there is little or no complaint of the throat or impairment of the general health, that diphtheria is so prevalent in New York. The diphtheritic virus is so subtle, and its vitality and power of propagation so great, that when it is once established in a sewered city the disease can probably never be stamped out, as cholera and yellow fever can.

Diphtheria is commonly communicated by the inhalation of air containing the specific principle of the disease, from whatever source the latter may be derived. More rarely the contagion is derived by direct contact with some infected solid substance, such as a particle of the diphtheritic exudate, muco-purulent secretion from an infected surface, or the blood of a patient. Observations are also accumulating which show that diphtheria, or disease closely resembling it, occurs among animals, and is sometimes communicated from them to man. The feathered tribe especially appear to be susceptible to this disease. Having described the introduction of diphtheria into the island of Sciathus, off the coast of Greece, apparently by means of some turkeys brought from Salonica, he quoted M. Menzie's authority for the statement that the disease is common among the poultry of Italy, and mentioned that a number of instances in which diphtheria appeared to be transmitted from animals to man were given in a paper by Dr. Delthil published in Paris in February, 1889. He next referred to instances in which it was apparently communicated by pigeons and fowls, as reported by Dr. F. F. Wheeler in the *American Practitioner and News* and Dr. George Turner in the *Journal of Laryngology and Rhinology*.

He then spoke of experiments by different observers which would seem to show that diphtheria can be transmitted from man to animals, and stated that if this were true, it could be inferred that it might likewise be transmitted from animals to man. Such observations and experiments, he went on to say, render it probable that genuine diphtheria, equally fatal, and attended by the same symptoms and anatomical characters as in man, does occur in birds, whether wild or domesticated, and in certain quadrupeds, as the rabbit. Nevertheless, it should be added that certain eminent pathologists, among them Virchow, have doubted the identity of animal and human diphtheria.

With our present light upon the subject, he thought it was evident that, since our relations to the domestic animals are so close, if they are sick with any disease resembling diphtheria the same precautionary measures should be taken to prevent infection of the family as in human diphtheria. Milk is a culture-medium of various microbes, and that it may be the medium of communication of diphtheria, as well as of scarlet fever, seems

probable. In this connection Dr. Smith referred to several instances of such apparent communication observed by different writers.

The fact that the diphtheritic virus may be conveyed long distances without losing its power is now admitted from the many observations that have been made, and the statistics given by Prof. C. W. Earle, of Chicago, in his paper on this subject before the Ninth International Congress, render it probable that the diphtheritic infection is not infrequently transmitted over long distances to salubrious rural localities by means of articles of clothing and merchandise.

Prevention. As regards the small extent of the area of its contagiousness and the persistence and highly infective character of its virus within that area, diphtheria resembles scarlet fever, and is unlike measles and pertussis, the specific principles of which, although they have a wider contagious area, are more volatile and more quickly dissipated. The most efficient method of preventing the propagation of diphtheria is the isolation and disinfection of patients, the prompt and thorough disinfection of the apartments in which they have been treated, and of the bedding and furniture of these apartments, and the exclusion or prevention of all noxious gases. Dr. Smith thought there was reason to believe that disinfection, as commonly practised, is inadequate, and in illustration he referred particularly to an epidemic of diphtheria occurring at the New York Infant Asylum in the spring of 1888. In the vacated ward forty pounds of sulphur, or two pounds to the 100 cubic feet, were burned until it was consumed; yet after the fumigation cultures made from dust derived from the floor and bedding produced a large number of microbes, among which Drs. Prudden and Cheeseman were able to distinguish the *streptococcus pyogenes*, identical in form and appearance with the streptococcus which they had previously discovered in two fatal umbilical phlegmons which had occurred in the ward in connection with diphtheria. Although more sulphur was used than is recommended and employed by the New York Board of Health, and in the manner recommended by the Board, it was inadequate to destroy the microbes.

It was evident that some more efficient mode of domiciliary disinfection was required, and Dr. Smith applied to Dr. E. R. Squibb, the eminent chemist, of Brooklyn, to obtain his views on the subject. Dr. Squibb wrote that, in our present state of knowledge, all that could be said in regard to sulphur fumigation against infectious material was that it is of doubtful efficacy, with the weight of the highest authorities in bacteriology against it. But to this it must be added that it is still largely used by very intelligent bodies in large institutions, boards of health, etc., where it would not be likely long to maintain an unearned confidence. Dr. Squibb believed that many of the recent failures with sulphur fumigation might, perhaps, be due to the fact that the fumes were applied dry, while formerly, when sulphur was burned in a closed chamber as a disinfectant, the surfaces were all wetted and the pot of burning sulphur was set in water or wet sand, that the heat might evaporate off a constant supply of watery vapor. These conditions, he said, were now frequently, if not generally, neglected, and where this was the case failure on principle should be the rule. Nearly all, if not all, chemical disinfectants are in a state of tension, ready to change on coming in contact with the matter to which they are applied, and these changes are either by oxidation or deoxidation; while the moment of greatest power or activity is the moment of change, when, by reacting on infectious matter, they pass from a state of tension to a state of rest under new relations. The agency through which these changes almost invariably become operative is the vapor of water. When sulphur is burned in a closed chamber, the dioxide is formed by condensing two molecules of oxygen from the air upon each molecule of sulphur, and the result is a heavy gas, which tends to settle at the bottom of the chamber and to run out through the lower cracks. Any moisture present is at once seized by the rather inactive anhydride, first forming sulphurous acid, and then, by oxidation from the air, sulphuric acid. It is during these changes that its power is exerted. If no moisture is supplied to the burning sulphur, that present in the air and on the surfaces of the chamber will soon be used up, and the dry gas remain in a comparatively inactive, inefficient condition. The anhydride will necessarily destroy all organisms which breathe in any degree, because breathing surfaces are moist. But in embryonic life protected by shell, as in seed, if the shell is dry, the gas will be impotent. Many bacteriologists have admitted that burning sulphur will kill bacteria, but not germs.

In commenting on this communication of Dr. Squibb, Dr. Smith said that it seemed probable that the apparent negative result of burning sulphur in the ward, as above stated, was due to the absence of moisture, since it was burned dry. In order to destroy the specific principle of diphtheria, Dr. Llewellen Eliot recommended, during the continuance of a case, the constant evaporation of turpentine over a water-bath. Dr. Smith said he had employed the following prescription for the purpose of disinfection during his attendance on cases, with apparently so good a result that he felt encouraged to continue its use:

℞.—Acid. carbolici } . . . āā f℥j.
Ol. eucalypti }
Spts. terebinth. . . . . f℥vj.—M.

Of this two tablespoonfuls are added to one quart of water, and the mixture placed in a shallow pan with broad surface. It is to be maintained in a constant state of simmering in the room occupied by the patient.

He next described the disinfection carried out some years ago by Prof. R. Ogden Doremus, in the wards of Bellevue Hospital, where pyæmia had been prevalent, by means of chlorine gas freshly set free; and then went on to say that diphtheria would continue to spread and largely increase the aggregate of deaths, unless stringent measures were employed to prevent its propagation by mild walking cases. He had, in a number of instances, seen children with diphtheria sitting among other children in the clinics at Bellevue Hospital, and had, in many instances, traced the disease directly to the schools, where one or more of the children had complained of sore throat. He saw no way to prevent its propagation by these mild cases except by enforced inspection and surveillance of children by parents, nurses, and teachers. Wherever diphtheria was at all prevalent, children who had the least sore throat should be excluded from the schools and compelled to remain at home.

In order to adopt adequate preventive measures the

fact should also be recognized that third persons who have had no diphtheritic symptoms themselves and infected apparel or furniture may be the medium of communication. After referring to several recorded instances of this kind, he said that nurses and physicians attending diphtheritic patients should avoid so far as possible the infection of their persons and clothing. Physicians in examining the fauces of children with diphtheria were very liable to receive upon their faces or clothes particles of the pseudo-membrane or infected muco-pus ejected by the violent cough excited by the examination. This might, to a considerable extent, be prevented by standing on one side during the examination, but he himself constantly carried corrosive sublimate with him, and washed his face and hair with a solution of it before leaving the apartment if he suspected that he had received any particle of the infectious material upon his person. Physicians thus exposed should also make use of precautionary measures in their subsequent visits to other children.

In conclusion, he referred to the paper read by Dr. A. Caillé before the New York Academy of Medicine in January, 1888, on the prevention of diphtheria, in which he stated that occasionally children had a recurrence of diphtheria each spring or autumn. Thinking that such children might perhaps harbor or carry with them the germ of the disease, he selected eight children having a permanent residence who had had repeated astacks of diphtheria, and subjected them to prophylactic treatment. All carious teeth were extracted or filled, and the mouth was rinsed after each meal with a solution of potassium chlorate, sodium chlorate or sodium borate. The solution was also gargled and injected or drawn through the nostrils. With this treatment the children had escaped the customary diphtheritic attacks during the two years that had elapsed since it was commenced.

CORRESPONDENCE.

THE CLINICAL APPLICATIONS OF BARIUM AND OF STROPHANTHUS.

To the Editor of THE MEDICAL NEWS,

SIR: When the defendant in a suit fails to appear, either in person or by attorney, judgment is taken by default, and great difficulty attends upon attempts to reopen the case. In the issue of this journal for February 23d ult., Prof. Bartholow has taken exception to the article of Dr. Hare, relating to the clinical applications of barium, claiming that he is entitled to some credit for its introduction and use upon this side of the Atlantic. While not necessary as a defence of the claims of Prof. Bartholow, it may be interesting to know what he taught concerning this remedy as early as the winter of 1881, and I take pleasure in reproducing from my note-book an extract of his remarks.

"The use of barium in medicine is a capital illustration of the advantages of scientific investigation as compared with empiricism. It (barium) has an acrid, styptic taste, and produces a flow of saliva and the stomach juices; in toxic doses it acts as an irritant poison. It increases the peristalsis and acts upon the nervous system; it slows the heart and its contractile power is largely increased. This is effected by the stimulation of the vaso-motor nerves, but when too long continued it may cause rigidity and tetanus, followed by paralysis. The pupil is dilated, this being due to stimulation of the radiating fibres of the iris.

"Therapeutics: It was first considered to be an alterative, but does not belong in this category. It has been used in aneurism, with or without Tufnel's method, and as it acts more energetically than ergot, it can be employed in arresting active hemorrhage, in the early stages of inflammation (the stage of congestion), in paresis of the bladder and in weak heart."

Like Prof. Bartholow, I feel that my efforts relating to strophanthus and its clinical applications have been overlooked in the course of your editorial in the same number. If you will refer to the issue of this journal for February 4, 1888, it will appear that I have already filed a caveat in the following words: "And I venture the prediction that its (strophanthus) value as a therapeutic agent will be greatly extended when it becomes more generally known." Admitting the high standing and great reputation of those to whom you refer, I am not willing that it should be understood that all of our knowledge of the clinical application of drugs comes from abroad. My prediction was based upon the results of clinical observation, and the experience of others, as well as my own work, goes to show that the favorable opinion was fully warranted.

Within the past year numerous references have appeared from time to time in THE MEDICAL NEWS, but for the most part, the authors have been foreigners, a fact which is not to the discredit of the remedy nor the writers, but it implies a lack of that spirit of investigation, which is so characteristic of our American people, and fails to do them justice. Neither the physicians nor the surgeons of this country are behind their trans-Atlantic brethren in enterprise, but the opportunities here for investigation are less numerous, and as a result, the work that demands attention on the spur of the moment is often marked by evidences of haste. Time will remedy these defects, and show that American citizens are entitled to take the lead in every department of medicine and surgery, and the references in our journals to foreign authors will be the exception rather than, as now, the rule.

JOHN AULDE, M.D.

PHILADELPHIA, March 23, 1889.

[The editorial to which our correspondent takes exception explicitly stated that it only referred to discussions which had taken place in the medical societies "within the *past few weeks*," and, therefore, his observations, which were published a whole year before, were of course not included.—ED.]

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ORIGINAL LECTURES.

THE TREATMENT OF BLEEDING FIBROID TUMORS OF THE UTERUS.

A Clinical Lecture Delivered at the Hospital of the Philadelphia Polyclinic and College for Graduates in Medicine.

BY B. F. BAER, M.D.,
PROFESSOR OF GYNECOLOGY.

GENTLEMEN: This patient first consulted us in November, 1887. She is thirty-five years of age, and has been a widow seven years. She has never been pregnant. The prominent symptoms in the case were uterine hemorrhage, recurring every three weeks, and lasting eight to ten days, with a watery fetid discharge in the intervals, and such loss of strength as to compel her to discontinue her daily occupation. These symptoms might lead you to suspect carcinoma of the uterus. The character of the hemorrhage, however, was not that which usually attends cancer of the womb, for in the latter case the hemorrhage is irregular, coming on at any time during the month, usually as a result of necrosis of tissue, and rarely observing the periodical character which is common to hemorrhages the result of other diseases of the uterus or ovaries. The hemorrhage in this case was periodical and corresponded in time, probably, to the period of ovulation, although when once started it was difficult to control, because the uterus had lost its usual power to contract and check the flow, as is the case when that organ performs its functions naturally.

When metrorrhagia is great and painless it is more likely to be the result of fibroid tumor than of any other condition. As a rule, however, fibroid tumor does not result in emaciation; the patient often presents a healthy, rotund appearance. But this case is an exception to the rule. This woman was so reduced from the suffering and hemorrhage that she was a confirmed invalid. The suffering resulted from the position of the tumor. If the tumor is not of great size and occupies a position where pressure will not interfere with the function of contiguous organs, the bladder and rectum, very little inconvenience is felt from its presence, and if hemorrhage is not severe, the patient may go through life unconscious even that she has a tumor, or at least in such comfort that she may never consult a physician. But where the tumor occupies a position as in this case (within the pelvis largely), it may give rise to the greatest suffering.

Examination showed the cervix elevated, and the entire womb crowded forward and to the right, by a tumor which occupied the left side of the pelvis. It seemed to be connected with the left side of the womb. There was also in the right iliac region a tumor, solid and firm, which seemed to be closely connected with the womb also. When these tumors were moved the uterus moved with them, and there was still another posterior to the uterus. Now, when the womb moves with the tumor, I think it is well to infer that the case is one of uterine tumor, and, therefore, fibroid. But this is not always the case. An intraligamentary cyst may have such close relationship with the womb that the latter organ will move with the movement of the tumor; or an ordinary pedunculated ovarian tumor may, by an inflammatory agglutination, give rise to such adhesion to the uterus as to cause that organ to move when the tumor is moved. Inflammatory disease of the Fallopian tube and ovary, together with pelvic peritonitis, may give rise to a tumor, movement of which would cause the womb to move also. There are other characteristics, however, of these latter tumors, which will nearly always serve to differentiate them from fibroids. For instance, in this case the tumor is hard and nodular, the nodules being round and smooth, a condition which is seldom found in any but fibroid growths. Then the time of the existence of the symptoms is important. Fibroid tumor is of slow growth usually.

A diagnosis of fibroid tumor was made in this case, and as surgical measures were rejected by the patient, she was ordered ten grains of chloride of ammonium three times a day, together with the fluid extract of ergot and the tincture of nux vomica, of each twenty drops three times a day. She was advised to see us from time to time. She has been taking this medicine regularly for a number of months with the greatest benefit, symptomatically, although with very little improvement so far as the decrease in the size of the tumor itself is concerned. She reports that she at once began to improve; that within a month after she began to take the medicine the hemorrhage was less severe, that the pain and other symptoms diminished. She has long since resumed her occupation, and is comparatively comfortable. She has gained in flesh, and is in every way in a much improved condition.

On examination to-day, more than a year after the treatment was begun, I find the tumors more mobile, but I cannot say that they are much smaller than they were at the first examination. There certainly has, however, been a modification in the circulation, and probably, therefore, in the nutrition of the growths, or there would not have been such marked improvement in the general condition of the patient. The only medicine she has taken in addition to the chloride of ammonium, ergot, and nux vomica, has been a laxative pill.

The result of the medical treatment, at this time, would seem to teach the lesson that the patient was right in rejecting the operation—oöphorectomy—which I advised more than a year ago. But time must decide.

The next case will serve further to illustrate the management of cases of fibroid tumor where grave surgical measures—oöphorectomy or hysterectomy—are declined by the patient or are not considered proper by the surgeon. The patient has been under treatment about four months. She is forty-six years of age. She has had

two children after normal labors, the youngest being seventeen years of age. She ceased bearing children at twenty-nine, and therefore may be regarded as a case of acquired sterility. Five years ago she began to lose more at her monthly periods than the normal amount, and this had increased, so that at times it would amount to what she characterized as a flooding. She complained of considerable soreness in the left ovarian region, and sometimes sharp cutting pains shooting down the thigh. There was also considerable pressure in the pelvic region, and sometimes irritation of the bladder from pressure. She was at the age at which the menopause usually occurs.

You are, doubtless, familar with the erroneous popular belief that flooding at this period of life is physiological. But this woman is not bleeding because she is forty-six years of age. The fact that metrorrhagia at this age is as likely to be the result of disease of the uterus or its appendages as it is at any other time, should not be forgotten. We found here an abundant cause for the hemorrhage, as will be found on investigation in almost every case of bleeding at this time of life. As thorough investigation should be made at forty-five as if the patient were thirty or thirty-five years of age. The hemorrhage should be looked upon as pathological. In my experience there is no such thing as physiological metrorrhagia, and I believe so to regard it invariably results in harm, because the fears of the physician, as well as those of the patient are quieted by such belief, until what might have been a curable disease, if recognized in its incipiency, has advanced to a stage where even palliation is scarcely possible before relief is sought. This is especially true of cancer, but practically applies to all cases.

Investigation proves that in those women in whom the cessation is gradual, and without more than the ordinary menstrual flow, better health is enjoyed then and afterward than where the so-called critical floodings occur. Where health exists the cessation of menstruation will be attended by no more aberrations of function than are seen in its establishment. Where deviations from the normal standard are marked and persistent, they should be regarded as pathological, and the cause sought for.

Examination of this patient, when she first came under our care, revealed a firm, hard mass just above the anterior wall of the vagina, the position usually occupied by an anteflexed uterus. As the finger was advanced along the under surface of this mass it was found to be continuous with the cervix. The latter organ was considerably enlarged, and the os so patulous as to admit the index finger far within its cavity. The mucous membrane was soft and hypertrophied. The hypogastrium was enlarged by several irregular tumors. They seemed to be one with, or closely attached to a common centre, which resembled the uterus, the whole forming a mass which filled the pelvis and the lower portion of the abdomen. The tumors were firm, and smooth on the surface; there was not the slightest evidence of fluctuation. These are characteristics of fibroid tumor, and because more than one was present a diagnosis of multiple fibroid tumor of the uterus was made. Two of the tumors were sub-peritoneal in character, but closely attached to the womb, rather sessile, rendering that organ soft from congestion; hence the hemorrhage. Of course, you are aware that the immediate source of the hemorrhage does not proceed from the tumor itself, but from the endometrium. Where a fibroid tumor exists there is always a secondary irritation of the lining membrane of the womb, and the nearer the tumor is to the uterine cavity the greater this congestion and hypertrophy, and therefore the greater the hemorrhage. In cases of this character, to locate the exact position of the womb, and to get a correct idea as to its size and the condition of its cavity, it is necessary to introduce the uterine sound. The sound gave a measurement of four inches, and showed a rugous, irregular condition of the lining membrane, and indicated that the main symptom in this case—the hemorrhage—might be greatly modified, and probably entirely relieved by treatment directed to the uterine cavity.

It would not have been proper to advise radical treatment by laparotomy in this case. First, because the patient was at an age when we would naturally look for a cessation of ovulation and menstruation, and therefore oöpherectomy for the purpose of bringing about the menopause was uncalled for. Hysterectomy was contra-indicated for the same reason. Even if the patient had been thirty-six instead of forty-six years of age it would not have been proper to subject her to a dangerous radical operation when we had such simple means of treatment as the course which was successfully pursued in this case.

The patient was placed in bed, and the bowels regulated by a gentle laxative, and antiseptic vaginal douches were made use of for the first twenty-four hours. A tupelo tent was then introduced and permitted to remain until the next day, when it was removed and irrigation with the bichloride solution made, and three tupelo tents introduced. These so thoroughly dilated the canal and softened the tissues that I was enabled to pass my finger to the fundus. I found that the mucous membrane was, as had been anticipated, greatly hypertrophied, but there was no polypus present. Curretting was then thoroughly made, and a large quantity of this degenerated mucous membrane removed, one piece half as large as my thumb coming away *en masse*. This mass was located at the left cornu. The parts were then thoroughly irrigated, and afterward a solution of iodine and carbolic acid injected into the cavity. The operation was done without the administration of ether, so slight was the suffering. She was then ordered ergot and nux vomica as follows:

℞.—Tr. nucis vomicæ }
Ext. ergotæ fluidi } . . āā f ℥j.—M.

Sig.—Forty drops in water after each meal.

In addition, she took ten grains of ammonium chloride t. d.

She remained in bed a week after this, and was then permitted to go about. She has taken the medicine regularly since that time. The uterine cavity has also been medicated about every second week by the injection of the iodine and carbolic acid mixture with which you are familiar.

The patient states to-day that she has been free from hemorrhage or other discharge for two months, and that the pain has entirely disappeared. On examination I find a marked improvement in her condition. The os uteri is not widely open as it was; the uterus and the tumors are more firm, there is greater mobility, and there

is not the evidence of congestion which existed when she first came under treatment. The patient is symptomatically cured. True, she still has the tumors, but as fibroid tumor is a self-limited disease—that is, depends for its growth upon ovulation—as soon as the latter function has disappeared, the tumors will undergo atrophy in accordance with their natural history.

She will continue taking the ergot and nux vomica, and the chloride of ammonium; the former to induce contraction in the bloodvessels, so as still further to cut off blood supply; the latter as an alterative. We will also continue the medication of the endometrium every two weeks until it shall appear to be in a healthy state. I think I am safe in saying that we have practically cured this woman by a comparatively mild and safe operation.

The next case (pedunculated sub-peritoneal fibroid tumor, incarcerated in the pelvis; complicated by peritonitis; removed by laparotomy) forcibly illustrates the danger of permitting a fibroid tumor to remain incarcerated in the pelvis. The patient is thirty-nine years of age, has been married ten years, and is sterile. She has suffered from dysmenorrhea since puberty, and during the last five or six years has had frequent attacks of pelvic peritonitis. She first presented herself six months ago, complaining of the following symptoms: Great pain in the left ovarian region, and a sensation as though something were wedged in the pelvis and pressing upon the urethra. She had not voided her urine spontaneously for months, having been taught to use the catheter.

Examination showed the cervix uteri low down near the vaginal orifice, the body of the womb anteflexed and crowded against the right side of the pelvis by a tumor, which occupied the left side of the pelvis and extended above the superior strait. The tumor was firm, somewhat nodular, and excessively tender on pressure. There has evidently been an exudation of lymph and a diagnosis of incarcerated fibroid tumor complicated by pelvic peritonitis was made.

The suffering of this patient was so great, and the tumor so firmly fixed that I at once advised the patient to undergo laparotomy for its removal. It would have been exceedingly dangerous to force this tumor out of the pelvis into the abdominal cavity, because of the exudation of lymph which surrounded it, and of the possible presence of pus. The patient was considerably emaciated from the suffering. She was ready and quite willing to undergo any operation which would offer a hope of relief.

Laparotomy was performed four months ago, an incision three inches in length being made in the hypogastrium. When two fingers were introduced, it was found that the omentum and intestines were glued firmly to the pelvic organs and upper surface of the tumor. After carefully dissecting among the friable lymph I came upon a tumor so deeply seated in the pelvis that it was difficult to reach it, and it was with great difficulty that I finally succeeded in elevating the tumor sufficiently to sever the pedicle; but, by coaxing and persistence, I finally succeeded. After the tumor was separated, the pelvic and abdominal cavities were irrigated with warm, previously boiled, water, a drainage tube inserted, and the wound closed around it.

The patient recovered without an untoward symptom, and she has been entirely free from pain since the operation. She has resumed her domestic duties, and states that she is in better health than she has been for years. I did not remove the ovaries in this case, as they were not found, and I did not feel justified in prolonging the operation to seek for them. If the attachment of the tumor had been sessile, I would have been compelled to remove the womb with it; but as it had a short, well-defined pedicle, I was able to separate it from the womb, and as the symptoms were due to the impacted tumor the indications were fulfilled by its removal.

The three cases which I have presented serve to illustrate a method of treatment successful in each, as well as the extremes of treatment which may be required in the management of cases of fibroid tumor. In the first case the treatment was entirely non-operative, and succeeded in relieving the patient. In the second, a minor operation likewise succeeded in relieving the symptoms and practically curing the patient; while the last case required a radical and major operation to effect a cure.

ORIGINAL ARTICLES.

A PLEA FOR THE USE OF THE MANGANESE COMPOUNDS IN CERTAIN FORMS OF DYSMENORRHŒA.[1]

By C. O'DONOVAN, Jr., M.D.,
of Baltimore.

At a meeting of the Gynecological and Obstetrical Society of Baltimore, held December 13, 1887, I presented a paper entitled "Remarks on the Use of the Manganese Compounds in Menstrual Disorders," in which I reviewed the literature of the subject up to that date, and expressed the opinion that in these drugs we have satisfactory remedies for certain disorders of menstruation. Considering the importance of the subject, when we remember the comparative infrequency of normal menstruation amongst our modern women of the cities, I was surprised at the meagreness of its literature, the number of references being few, and the articles referred to often proving to be records of isolated cases, or of groups of five or six only. The strong commendation of Drs. Ringer and Murrell in England, and the testimony of Dr. Fordyce Barker of New York, and of Dr. Martin of Chicago, atone, however, for what is lacking in others.

As the subject is one of therapeutics, and treats of a class of cases that necessarily appeals to the general practitioner and family physician before resorting for relief to the gynecologist, I thought it appropriate to present this paper rather to this Society than to any other, as more likely thus to reach those for the amelioration of whose sufferings it is intended. To every one of you has come at some time, or will certainly come, the mother of some young girl with a pitiful story of her daughter's sufferings at every menstrual epoch, perhaps as the result of exposure at that dangerous time to cold or wet; or, perhaps,

[1] Read before the Clinical Society of Maryland, February, 1889.
[2] See Maryland Medical Journal, January 7, 1888.

she will state that there has always been some discomfort attending menstruation, which has increased month by month until now she is worn out with suffering and unable longer to bear the tax upon her nervous system; or there may be amenorrhœa, from suppression of menses, either as a result of cold or from some other cause to be discovered by you, and remedied; but in every case it is the disordered menstruation that is causing most anxiety, and it is that which demands consideration.

The question put to you is plain; how will you answer it? The busy practitioner has little time for listening to the innumerable complaints of nervous girls and is apt to put such a one off with a placebo, hoping to gain time; or, if he feels especially interested in the patient, he builds her up on a long course of iron, with the bitter tonics, listening patiently to her many woes, quieting her nerves with anodynes, and hoping for a cure after a time; sometimes he succeeds fairly well, oftener he fails, and again returns to the point from which he started; though benefited for a time, his patient is again languid, nerveless, leading a life of terrified expectancy between her menstrual epochs, undergoing tortures with each recurring period. In an unguarded moment he suggests a vaginal examination by some gynecologist in consultation, only to find mother and daughter in arms against any such treatment, and most likely deeply insulted at the bare suggestion; the usefulness of that practitioner in that particular case is gone forever, he has confessed his inability to treat the case, and all confidence in him is lost. Very often he will hear within a month that the consultant whom he happened to suggest, is in charge of the case as trusted attendant.

It is well to state just here that all cases of dysmenorrhœa are not due to misplacements of the womb, or to any anatomical irregularities that can be discovered either by gross or microscopical examination, and many times have excellent diagnosticians been wrong in making diagnoses from the symptoms, which seemed to point so clearly in one direction, but which had led to a fallacious conclusion.

In order to call attention to another, and a very potent drug for good in many instances, I wish to relate some of my experiences with the manganese compounds in cases of this sort; and if the reader will carefully follow me, I am sure that he will often be spared the mortification of failure, and his patients will escape much suffering. I speak now more particularly of unmarried women, who naturally rebel against physical examination, and whose sensibilities should be respected as far as possible. With married women it is different, and, rather than waste time upon a trial of drugs, I think it better to make a vaginal examination as soon as the symptoms point unmistakably to uterine or ovarian disease, when we obtain data for a diagnosis quickly and certainly, and may institute treatment founded upon knowledge rather than upon theory. That manganese is beneficial often to women who are married and sterile, and in certain states to those who have borne children, I shall prove further on; at present I speak only of those who are unmarried.

Case III.—A. M., white, æt. twenty-four, unmarried, consulted me for the first time for this trouble, January 18, 1888. She was a tall girl, rather thin, but well-developed; arms, hips, and breast of perfect form and symmetry; her general health between menstrual epochs was fair, her appetite being capricious; her bowels were never regular, varying between constipation, the usual habit, and slight attacks of diarrhœa; she was pale, suffered from cold hands and feet, with a well-marked development of neurasthenia, probably due to her work, which was clerical, and imposed a severe strain upon her both physically and mentally. There was nothing organically wrong with her heart or lungs, but any slight cold would last with her for a long time, and over-exertion often produced what she called "palpitation of the heart" in paroxysms, though I never witnessed one.

Whenever she menstruated her sufferings were intense, beginning with a sense of discomfort a couple of days before the flow, and gradually developing until the first two days of menstruation, during which she suffered tortures. When I saw her she had just passed a period, having had a worse experience than ever before, being able to bear the pain only after stupefying herself with brandy, to which she has often before been compelled to resort on similar occasions, but which she would never touch under other circumstances. At that time I thought that her dysmenorrhœa was due to anæmia, so I accordingly directed her to take medicine to keep her bowels regular, and ordered iron in small doses (Blancard's pills) with each meal. Under this treatment she grew stronger, her appetite improved, and she was better able to stand the worry at her office. Everything went well until the return of her menstruation, when she passed through the same miserable experience as before. I persisted in the treatment, varying it in detail by substituting other preparations of iron, but with no better success at her menstruation during March. At that time I was using permanganate of potash, so, on April 3d, I ordered one grain of this salt, to be taken three hours after each meal, with half a tumblerful of water or milk. She tried the remedy faithfully, but reported that it disagreed with her stomach constantly, notwithstanding the use of larger quantities of water, so, on April 18th, I ordered, instead, one grain of the black oxide of manganese, to be taken in the same way.

May 3d, she reported that she had had the most satisfactory period that she could remember; the flow was ample and she had had very little pain, so little that instead of lying at home drugged with brandy, she was able to attend to her regular work. After this she was instructed to begin with the manganese oxide a week before each returning period, and take three doses each day until she ceased menstruating; this she has done with more or less regularity ever

since, and she has always had comfortable periods if she takes the drug, but if she neglects it, she is always reminded of her neglect by a recurrence of her dysmenorrhœa.

I relate this case as a type, representing cases that may occur every day in the practice of anyone; she represents the poisoned air of the large office crowded with desks, at which women sit every day wearing out their vitality, and becoming more and more habituated to suffering and disease. Had she been weakest in the lungs, most likely she would have developed consumption, but as her nervous system was least able to bear the strain, it was neuralgia that developed most prominently, directed chiefly toward the menstrual function by the probable existence of some abnormal development of the uterus, or perhaps by some unknown ovarian influence. It is in this class that often appears hystero-epilepsy, and my patient was bordering upon that state, if I may believe her statement of twitchings and involuntary jerkings of her muscles while she suffered so intensely; that disease which is so little understood, and is treated so variously. Had she continued as the course of her sickness ran before I saw her, growing worse all the time, each succeeding period bringing her nervous condition into more and more abnormal prominence, as she depended upon her daily work for support, it would soon have become an open question with many gynecologists whether or not her ovaries should be removed. Yet under treatment such as I have indicated, she has recovered, and is able to look forward to a life of comfort, freed from the constant dread of each period that formerly rendered her miserable. She is still pale, is still taking iron occasionally, and must be very careful in her diet unless she would fall back into her old habit of constipation; she is still nervous at times, and often feels as much fatigue from overwork as she formerly did; the change for the better in her menstrual sufferings cannot be ascribed to any change in her general condition, for there is very little change, but as long as she takes the manganese regularly she is free from that suffering, and as surely as she neglects it, it returns. The conclusion seems very clear, that in some way she is benefited by the manganese.

Were this an isolated case, I should not dwell upon it so, but I have records of a number of similar cases, of whom many were benefited nearly as much, some quite as much; some whom I had classed in this category, failed to receive relief, of whom several consented to a vaginal examination, and in every instance sufficiently acute flexions, usually anteflexion, were found to account for the failure of the treatment. Under no circumstances would I propose an examination to an unmarried woman presenting the symptoms detailed in this case until I had for three months failed to relieve her during treatment with manganese; this length of time I should consider enough, though some authorities report satisfactory results after six months of continuous use.

Case XIV.—E. M., white, æt. twenty-four, unmarried, consulted me April 12 1888. She was under the medium height, but well developed, having firm muscles and a well-rounded form. She was engaged every day as a saleswoman in a store, and was compelled to be on her feet nearly all the time. She lived about two miles from the store, and usually walked both ways each day; she was of a lively disposition, full of spirits, vivacious and entertaining; she presented no appearance of ill-health whatever, had a good color and bright eye, but would lace her corsets so tightly that her waist was a marvel. She complained of intense and increasing dysmenorrhœa, which had begun about three years before her visit, and had been growing worse with each successive menstrual epoch, which recurred regularly, lasted four days usually, but with a scanty flow. The pains were always worse just before the commencement of the flow and during the first two days of menstruation, becoming easier then but not disappearing entirely. She had never taken any care of herself, would expose herself to wet and cold during her periods without any extra precaution, never gave up any pleasures that might interfere with her health, and was experiencing the natural consequence. She had never had any treatment for this trouble. Otherwise she was in perfect health, her appetite was good, her bowels somewhat constipated. I ordered for her one grain of the black oxide of manganese twice a day, in the usual manner. May 8th, she reported that she had taken the capsules regularly as directed, and had passed through a period without discomfort, much to her surprise, an experience to which she had been a stranger for three years. The flow came on without any warning, lasted the usual time, was somewhat more profuse than usual, and was accompanied by no pain. May 22d, she called at my office, and stated that she was then menstruating, that she had been working all day at the store, and felt only a slight ache in the back. She asked if I thought it would hurt her to go to a church fair that night, telling me that she meant to go whether I approved or forbade her. This was evidence enough for me that she was not suffering very much.

This case represents that class of patients who, having been born of healthy and vigorous parents, start well in life, gifted with all the physical qualities necessary for growth, and who advance satisfactorily until puberty, giving promise of perfect womanhood, but for some reason or other, while in perfect health externally, the establishment of the menstrual function is accompanied by more or less inconvenience and pain, which condition instead of diminishing after the regular appearance of the menses, becomes rather more aggravated at each successive period. As the girl is in such health apparently, she is called upon to do her share of work in supporting the household, and her sufferings are treated as imaginary, or are laughed at, by those whose ignorance is

alone an excuse for their conduct. If her mother should have sense enough to consult a physician, the chances are that she will be told that her daughter will eventually outgrow her trouble, or some other equally evasive answer will be given her. The poor child knows the reality of her sufferings, but finds that all her natural protectors and guides unite in making little of them, so she is compelled to bear as best she can what might have been, in many cases, easily relieved, and the habit of dysmenorrhœa gains a deeper hold on her system with each succeeding period. Then comes the time of work, and association with other girls, many of whom are suffering from the same malady, from whom she learns the use of whiskey or morphia to deaden the pain which has grown too severe to be endured, remedies which are used at first to relieve only the agonies of dysmenorrhœa, but after a while are called upon to relieve every pain or ache, real or imaginary, to which her diseased nerves call attention, until the habit becomes too firmly fixed to be discontinued. Cases illustrating the truth of this story will occur to too many of us.

Had these girls been properly treated at first, had their complaints been patiently heard and suitable medicine been given them, many would have escaped that are now victims of these habits. I do not claim that manganese will relieve every girl whose history is such as I have detailed, but I would have every physician acquainted with its virtues, and prepared to use it in all properly selected cases.

CASE XIX.—J. M., white, æt. twenty-seven, unmarried, consulted me for the first time on May 17, 1888. She was a tall, well-developed woman, of splendid physique and fine carriage, a blonde, with a clear complexion and a fair amount of color; a good walker, given to no habits of sedentary laziness, but full of energy and activity. She said that at each period since the establishment of menstruation she had suffered from intense pain just before the appearance of the flow and during the first day; for relief she was always obliged to remain in bed, where she bore the pain as patiently as she could, with the assistance of unlimited quantities of gin, thinking that the pain was a necessary accompaniment of menstruation in her case, and had ceased to hope for relief, as she had been treated by several physicians at different times with various medicines, but with equally bad results. Her description led me to conclude that she had an anteflexion of the cervix, and I suggested the trial of manganese with very faint hopes of success. It was ordered in one-grain doses thrice daily, to be taken in the usual way.

June 7. She reported that she had taken the manganese regularly, and had just passed through the most satisfactory menstruation that she could recall. She was ordered to take the capsules three times each day for a week before her next period. After this I did not see her again until December 10, 1888, when she told me that for three months she continued to use the capsules as I had directed, and that each time she experienced perfect comfort, her menstruation being regular and painless. Through some misfortune she had then lost the prescription, and being out of the city she had been unable to have it repeated; since she ceased to take the manganese, her old trouble had returned, and she had again the dysmenorrhœa as severely as ever, so that she was again compelled to spend a day in bed at each period. I ordered the same treatment, and on January 11, 1889, she reported that she had just passed through a period that gave her no trouble whatever.

This example is drawn from a higher social grade than the former two, and represents those women who grow up in pampered idleness, whose nervous systems have been developed in the unhealthy atmosphere of the crowded schoolroom, where the greatest attention is paid to the education of the brain, and little care is given to the body. As soon as the school is left comes the constant whirl of social amusements, engagements of one kind or another which fill up the afternoon and evening, seldom allowing the participant to have any sleep before midnight, and too often keeping her from rest until two or three in the morning; taking her night after night into crowded rooms, where the temperature registers from 90° to 100°, and every cubic foot of air is respired again and again until it becomes disgusting to one newly entering from outside. From this she goes suddenly out into the freezing atmosphere of a carriage, while she is still overheated and insufficiently clad for the change; and then to bed, where she tosses restlessly, vainly trying to banish from her excited brain the constantly recurring scenes through which she has been passing. Is it any wonder that the modern society woman, before she reaches twenty, begins to be pale, to grow thin, to complain of her nerves, and to seek remedies for sleeplessness and other ailments?

Fortunately, the lady whose history I have related did not indulge in these social dissipations immoderately, and had too much sense to be blindly controlled by all of fashion's follies; she would not pinch her feet into narrow shoes with high heels that would throw her so far forward that she could maintain her erect posture only by overtaxing her lumbar muscles; she would never so constrict her waist with corsets, as many do, that all the pelvic organs would be crushed together, with the uterus very likely thrown so far into the hollow of the sacrum that, after a time, the ligaments would not retain it in its proper place; she would not give way to that laziness that usually goes with social indulgence, but kept her bodily health far above the average by plenty of exercise out of doors, and by a careful attention to all the rules of hygiene as applied to the human body. Had she indulged in these faults, I feel certain that she would have been in far worse condition, and

doubt much if my treatment would have relieved her so promptly and effectually. Yet, as the representative of the class of the highly organized society woman of the day, she will bear evidence to the efficacy of manganese in relieving the character of menstrual disorder so prevalent in her class.

For less pain than she suffered, I have no doubt that many women have submitted to the operation of posterior section, and a greater number to mechanical dilatation of the uterine canal—operations which render necessary an unknown amount of after-treatment to prevent the subsequent closure of the canal. If we can avoid the necessity of these operations by the employment of manganese, even in a small proportion of the cases applying for relief, we must admit the value of the remedy. And it is just in this class that the best results may be reasonably expected from its use, for I am led to consider it a tonic peculiarly adapting itself to the organs of generation; whether through direct action upon the organs themselves, or by means of their nervous supply derived from spinal centres, is as yet unknown, but its action is to be expected most surely in women who are deficient in tone of muscle and nerve from those causes to which our modern society woman is exposed constantly, and which is variously described by those subject to it as languor, depression, sense of weakness and inability to do anything, and which is often particularized as backache with no definite limit, as a sense of weight in the pelvis with a weakness of the lumbar spine, and in many other ways as numerous almost as the individual sufferers. In many of these cases manganese is the tonic required; many cases are on record that prove its effect for good; I have records of several.

Another class is represented by

Case XV.—I. A., white, unmarried, æt. thirty-five; who consulted me for the first time on April 19, 1888. She told me that she depended upon her sewing for a living, much of it being done with a heavy sewing-machine, after which work she always felt much worse; the aching, and sometimes even intense pain, were in her back and hips, and extended, when it was particularly bad, up along her spine on both sides. With each recurrence of menstruation she suffered with severe dysmenorrhœa, which persisted throughout the period, and left her completely fagged out. In addition she was dyspeptic, nervous, constipated, and sleepless, suffering from that train of symptoms found so often in sewing-women. I ordered nothing but manganese oxide in one grain doses, to be taken twice daily, and an aperient to be used when required. April 26th she reported that her back felt much better and that her nervousness seemed more under control. May 8th, she had passed through a menstrual period since I saw her last, and suffered only slight inconvenience. She felt like a different person, had no backache at all, and was able to work much better and for a longer time at a stretch than for years. She felt that she could not get on at all without the manganese. I have heard since from her, and the improvement continues, though she does not take the medicine so frequently, but has recourse to it if she finds that her health is again deteriorating.

The success of the treatment in this case teaches that age offers no bar to the use of manganese, nor should the length of time that dysmenorrhœa has persisted cause us to despair of relieving it. If the habit of pain can be formed, we should naturally suppose that it had fully developed by the age of thirty-five, especially when it had been augmented and intensified by hard work and sedentary habits, such as go always together in the case of seamstresses. If these good results may be expected in such cases, we see at once a wide field of usefulness in this one direction, for every woman who follows closely this mode of life becomes more or less affected in a similar manner, especially unmarried women, of whom we are now speaking particularly. I can recall very few who sew, and who, having reached the age of thirty, can claim immunity from pain during menstruation; amongst those who use sewing-machines I can remember none; those who, during the early years of menstrual life, had suffered little or no discomfort, have gradually developed dysmenorrhœa; those who had always more or less pain, have had it intensified, and in each class the process of increase continues with each period.

Now, the causes of this are various; there may be malposition of the uterus, which probably causes the greatest number to suffer; there may be cellulitis, either acute or chronic, as it is so likely to become in women so situated that they are unable to have the rest and treatment necessary to cure it, and this cause probably ranks second in frequency; there may be a prolapsed ovary, either free in the cul-de-sac, or bound in its false position by adhesions, and causing most intense and persistent suffering; in none of these cases can we expect much relief from manganese, for the cause of the trouble is irremediable by medical treatment alone; but, apart from these, there are many women whose constant labor has so worn them out, so broken down their nervous systems that, unassisted by the peculiar influence of some medicine having special power in such cases, they must give up, or go on in an agony of suffering. Do we know of any drug that can exert such power? In cases properly selected I have seen manganese act just in this way, and in proof I have related the foregoing case, which is one from several of whose history I have notes. They were not all benefited as much as she was, nor so promptly, although some were, yet the improvement manifested was such as to encourage a further trial of the manganese, and with time its effect became more decided. Those cases that gave no result after a prolonged course of treatment were supposed to be

suffering from one or other of the causes detailed above, and the truth of this supposition was substantiated in a few cases by vaginal examination, but most of them declined further treatment.

In married women the use of manganese is somewhat limited for obvious reasons, for in them those objections to vaginal examination do not exist, and any discernible cause of dysmenorrhœa may readily be discovered, and proper treatment be instituted without loss of time. I have used it in cases of dysmenorrhœa, associated with sterility, whose pelvic organs were, as far as I could make out, perfectly normal, and have at times obtained benefit, but I had always before me the fear that conception might take place and an abortion result, so that in these cases the drug had never the full and satisfactory trial that it deserved; still, in cases that presented the symptoms that I have detailed previously, even in married women, I would give manganese, at least, a trial, if a vaginal examination indicated no cause of the pain; such cases would occur in those women who had suffered from dysmenorrhœa before marriage, and in whom an infertile wedlock had not only failed to relieve but had rather given rise to an increase of menstrual pain, but I should be very cautious about holding out promises of relief or of permanent cure.

When I began this method of treatment I tried first the permanganate of potash, in one grain doses well diluted with milk or water, fully two or three ounces being taken just after swallowing the pill, and more fluid was drunk if any inconvenience manifested itself in the stomach. Many of my patients took the pills readily, but some complained, saying that the discomfort persisted in spite of frequent draughts of water; so I began then to use the black oxide of manganese, and with equally good results, and without the disagreeable symptoms induced by the permanganate.

I order the drug by itself, to be put up in capsules, one grain in each capsule, and have yet to hear the first complaint from it. The dose that is usually employed is one grain three times each day, to be taken three hours after each meal, and followed immediately by at least half a glassful of water or milk. I have given doses of two, in a very few instances of three, grains, but I prefer to use the dose of one grain and continue the drug for a longer time, as the system seems to adapt itself to the remedy better, and there need be no fear of disordering the stomach. Another preparation, which I find preferred by some patients, is the compressed tablet of the pure drug manufactured by Wyeth, of Philadelphia, and other druggists.

The following conclusions may properly be deduced from the foregoing remarks:

1. The manganese compounds are valuable additions to the therapeutics of dysmenorrhœa, from which, in a certain number of properly selected cases, great benefit may be expected.

2. Their use does not interfere in any manner whatever with the administration of iron or the vegetable tonics, but rather aids and is aided by them.

3. The best results from the use of these remedies may not be obtained at once, and failure should not be confessed until after a continuous trial lasting for three months.

4. So far as we know at present, the black oxide of manganese is the most convenient form of administering these drugs.

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THE EFFICACY OF THE OLDER METHODS OF TREATING NASAL DISEASE CONTRASTED WITH THOSE OF TO-DAY.[1]

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IT is of historical interest only to look back twenty years and examine the therapeutic measures then employed in the treatment of nasal disease. A review of the scientific study of diseases of the upper air-passages carries us back only about thirty years —for the laryngeal mirror and suitable apparatus for illuminating the larynx and nasal cavities came into use no further back than 1858. We can obtain for our present purpose sufficiently striking comparisons by reviewing the therapeutic measures which have been employed during the past ten years.

Prior to 1860 it is the old story of earnest and diligent workers endeavoring to obtain correct ideas of the pathology and etiology of diseases, the physical appearances of which they could not see, and trying to treat mucous surfaces which were inaccessible by reason of lack of proper methods of examination. The progress made in the treatment of nasal disease during the period from 1860 to 1875 seems to us, as we look back, far less rapid and satisfactory than it has been during the past ten years. But this time was not wasted. It requires ten years in any special line of medical investigation to perfect instruments for thorough physical diagnosis and to become expert in their use. Ten years are easily spent in investigating the action of drugs when applied to mucous membranes, in discarding the worthless ones from our materia medica, and in retaining perhaps the only one of many which has not proved disappointing in its action.

In the period from 1870 to 1880, which may be properly designated *the period of topical medication* by means of douche, sprays, brush, and applicators, the disease commonly known as chronic nasal

[1] Read at the meeting of the New York State Medical Society, February 5, 1889.

catarrh largely engrossed the attention of rhinologists. The pathology and etiology of catarrhal inflammation of the nasal mucous membrane were accepted without question to be identical with those of all other mucous surfaces of the body. Nasal catarrh seemed to be a disorder the principal phenomena of which were swelling and hypersecretion; and it was the chief aim of the operator to check this apparent increase in the mucous discharge by the same methods as had always been employed in controlling hypersecretion of other mucous surfaces, and astringents vegetable and mineral were applied in all varieties of ways to the nasal surface, first with probang and brush. That the troublesome symptom hypersecretion, was not remedied by these measures seemed to be readily explained by the fact that the astringent drugs thus applied only came in contact with the lower chambers of the nose, while the upper portion, being inaccessible, were unsatisfactorily treated. It was felt that a long step was made forward when the air-pump, air receiver, and atomizing tubes were at last perfected, and all portions of the nasal and pharyngeal mucous membrane, even the most remote, could be medicated by their use.

It required ten years to demonstrate that these phenomena of catarrhal inflammation of the nose, swelling and hypersecretion, could not be controlled by astringent drugs in weak solution applied by brush or spray. Every rhinologist will remember the repeated and discouraging failures which forced him to the conclusion that he must pin his faith on therapeutic measures other than the spray and douche if he would cure his patients who were suffering from chronic nasal disease; and, by the way, that word *cure* was handled very guardedly by the nasal physician in those days. It was the patient who introduced it into the conversation To-day we are not obliged to run away f.om this word.

Another of the fundamental fallacies which wasted the valuable time of the physician who treated diseases of the upper air-passages, between the years 1860 and 1870, was that he considered the larynx clinically the most important part of the respiratory tract. Diseases here were carefully studied and treated, while nasal disorders were ignored. It seemed to be felt that the small length of the air-tube called the larynx was separated pathologically from every other portion of the respiratory tract. It is now known that laryngeal catarrhal inflammation is almost always secondary to and dependent upon the same character of inflammation of the nose, and no matter how frequently and to how great an extent laryngeal catarrh is benefited by topical applications, relapses will always speedily occur until that great source and cause of inflammation of the upper air-passages—*nasal disease*—is controlled. Ten years ago there were many laryngologists, and they worked at the wrong end of the upper respiratory tract. To-day there are numerous rhinologists, because it has been demonstrated beyond peradventure that catarrhal inflammation commences in the nose and extends downward.

The real and remarkable progress in the treatment of nasal disease during the past eight years has been attained because we have at last appreciated: 1st. That the anatomical structure of the nasal tissues is a peculiar one, differing in a marked way from other mucous surfaces and consequently demanding different treatment. 2d. That this peculiar structure performs a remarkable physiological function; and 3d. That the disease which was formerly known as chronic nasal catarrh, and now more frequently called chronic hypertrophic rhinitis is not satisfactorily explained by the pathology which our writers attribute to catarrhal inflammation of ordinary mucous membranes.

Let us review this ground for a moment. First, we have said that the older methods of treating nasal disease—methods which were composed mainly of the application of astringent drugs to an oversecreting mucous membrane, were ineffectual because the physician failed to recognize the peculiar anatomical structure of the nasal tissue and its remarkable physiological function. In examining the nostrils of patients suffering from the most common variety of nasal disease, observers were always impressed with three pathological conditions: 1st. The occlusion of the nasal cavities by swelling of the nasal tissues. 2d. The heightened color of the mucous membrane; and 3d. the presence of hypersecretion. The indications for treatment seemed clear: to control all of these symptoms by the application of astringent remedies. But it was found that so-called astringents seemed to be stimulating or irritating in their effect, for all three of the pathological conditions were increased rather than diminished by such treatment. This failure seems to me to be satisfactorily explained by this one fact, viz: that nasal operators were dealing with an erectile structure and not a simple mucous and submucous tissue, *endeavoring to astringe the physiological erectility of a cavernous body* with weak sprays of silver, copper, tannic acid, and zinc. We can understand now that these daily applications were just the peripheral stimulation needed to produce a constant erection of these bodies, and that when they were persisted in for some time the continued erection of the nasal tissues was at length followed by paralysis of the overtaxed vaso-motor system which regulates the quantity of blood flowing to the nasal turbinates. The result was a more or less permanent occlusion of the nostrils by swellings composed not so much of hypertrophied tissues the result of a chronic rhinitis, but composed of the dilated venous sinuses of a cavernous body whose power of erectility and contraction had been abolished by the application of

irritating drugs. Every application of cocaine to these nasal swellings demonstrates that they are only to a slight degree made up of hypertrophied connective tissue, since they are entirely effaced—completely levelled to the plane of the normal neighboring tissues by the action of this drug.

It will be seen, therefore, that the name "hypertrophic rhinitis" is very frequently misapplied. Not only is it not a hypertrophic process which characterizes this disease, but the significance of the term rhinitis, as indicating an active inflammatory process, is also very frequently misleading, since the swelling of the soft tissues seen in chronic nasal disease is composed of bloodvessels permanently dilated by over-physiological action or by external irritants.

We have said that permanent dilatation of the bloodvessels which form the cavernous turbinated bodies may come about by reason of over-physiological action. This is a point worth considering. As long ago as 1769, Morgagni called attention to the "red thickness of the membrane of the nose," but seems not to have appreciated that this was an erectile structure. And Toynbee,[1] writing in 1868, says: "Many years ago I pointed out the peculiar erectile tissue of the nasal mucous membrane—this tissue is a most efficient respirator." In 1853 Koherausch demonstrated what he called a "cavernous network of veins" by injecting the submucous nasal structure through the jugular vein. Hyrtl and Kölliker made similar experiments and arrived at the same conclusions as to the presence of this true nasal erectile structure. But to Dr. H. J. Bigelow, of Boston, the credit is due of describing, in the year 1875, this erectile structure in detail, and he called attention also to the alternate swelling and contraction of this structure, naming it the "turbinated corpora-cavernosa." Bigelow obtained his results by injecting the nasal structure locally. We have therefore in the respiratory portion of the nose, especially abundant over the inferior turbinated bone, a true membrana mucosa in the meshes of which is formed an erectile tissue.

That so unusual a structure as erectile tissue was placed in the nose for a distinct purpose no one can doubt. We believe that the expansion and contraction of this nasal tissue are not due to inflammatory congestion, but are physiological acts, which are regulated by a finely adjusted nervous mechanism as sensitive as that which presides over the movement of the iris. Since it has been known that inspired air is elevated in temperature to the proper degree for its reception into the lungs by warmth obtained almost entirely from the nasal tissues, and that from this same source alone the inspired air receives the necessary amount of moisture, it is more than probable that the nasal erectile tissue changes in size constantly with every variation of the thermometric and barometric scale.

I would refer here to the experiments done by Aschenbrandt,[1] which I have not time to quote, and also to an article by Greville Macdonald,[2] M.D. Both of these gentlemen have demonstrated, by an arrangement of tubes which allowed the air to pass into one nostril and out the other, that air inhaled at 53.6° Fahr., and also at 46.4°, was exhaled from the opposite side of the nose (without having passed to the lungs) at a uniform temperature of 86°. And it was also demonstrated that air became charged with water to the point of saturation, by its passage through the nostrils. Keeping in mind these important physiological functions performed by the nasal tissue, the necessity for perfect nasal respiration and the evil effects of mouth-breathing will be apparent.

The intense functional activity of the nasal tissues, together with the fact that they are exposed to the irritation of dirt and dust from without and frictional irritation from within, due to contact with projections of bone and cartilage upon the septum; these factors greatly predispose to constant distention of the venous sinuses of the nose and eventual vasomotor paralysis. We have here, then, the so-called hypertrophies of the most common form of nasal disease, not due properly to a catarrhal inflammation, but to a great extent caused by the functional activity of an erectile structure. This much and more has been learned in regard to nasal anatomy and physiology, and this knowledge will, I believe, substantiate the third proposition of this paper, viz., "That the disease which was formerly known as chronic nasal catarrh, and now more frequently called chronic hypertrophic rhinitis, is not satisfactorily explained by the pathology which our writers are in the habit of attributing to catarrhal inflammation of ordinary mucous membranes."

To proceed one step further: if the nostrils are partially or wholly occluded by the bagging of the nasal tissues, the remaining pathological appearances and the subjective and objective symptoms of nasal catarrh are satisfactorily explained by the mechanical causes which are incident to nasal obstruction. For example: as to the matter of hypersecretion—which to the patient is the most annoying of all symptoms and is the most obstinate one with which the physician has to contend—*its* presence is also to be explained on other grounds than the result of catarrhal inflammation. This apparent hypersecretion may manifest itself in two ways: first, there may be simply an outpouring of serum from the over-distended vessels of the erectile struc-

[1] Toynbee: Diseases of the Ear, p. 200. London, 1868.

[1] Aschenbrandt: Ueber die Bedeutung der Nase in der Respiration. Würzburg, 1886.

[2] Macdonald: On the Mechanism of the Nose as regards Respiration, etc. British Med. Journal, December, 1888.

ture, as seen in the periodical exacerbations of the disorder called hay-fever, and in many cases of very sensitive and irritable nostrils. And, secondly, it may be said that the collections of mucus and muco-pus which are blown from the nose and hawked down from the post-nasal space, although apparently much greater in quantity than the normal mucous secretions, in many instances do not represent an increased glandular secretion, but rather a stasis of the normal flow. Stasis of the nasal secretion takes place, first, because the air current is too feeble in a partially occluded nostril to waft it on; and, secondly, because the action of the ciliated epithelium is also abolished in an obstructed nostril. If hypersecretion can be explained in this manner, it is another strong argument against the name rhinitis or any word ending in *itis*.

It is not within the province of this paper to speak of the intimate relation which careful study during the past five years has discovered to exist between nasal disease and many reflex phenomena such as bronchial-asthma and the asthma associated with hay-fever. We can only mention in passing, nasal coughs, the hemicrania, migraine and the various neuralgias due to nasal irritation, the direct and reflex aural phenomena cured by relieving nasal irritability, the close relation between nasal congestion and that of the conjunctiva; and it may come to pass that the rhinologist as well as the oculist will claim his share of the work in the treatment of epilepsy and chorea by demonstrating nervous relationship between these diseases and disorders of the nasal chambers.

As we have already said, it has been positively demonstrated that laryngeal and bronchial inflammations are secondary in the majority of instances to nasal disturbances: 1st, by the extension downward of the process; 2d, by the abolition of the nasal function; and 3d, by reflex causes. The surgical apparatus and the therapeutic measures which the rhinologist possesses to-day are adequate to correct the pathological conditions present in nasal disease. Cocaine and careful antiseptic precautions permit him to remove whatever may seriously obstruct nasal respiration and function whether it be soft tissue, cartilage, bone or tumor, without pain or constitutional disturbance to the patient. The perfected atomizers still have their use in properly cleansing the mucous membrane before the essential treatment is commenced. The storage battery which furnishes the electric light for illumination, the galvano-cautery for removing soft swellings and also the motive power to propel the trephine, the saw and the drill, is an invaluable addition to the nasal operator's equipment. While it is necessary to remove enough of soft or hard obstruction to secure free nasal respiration, *it is imperative to leave uninjured sufficient soft nasal structure to perform perfectly nasal function.* Too much emphasis cannot be placed upon this caution.

We have in considering the peculiar anatomy and physiology of the nose, and the more recent pathology of nasal catarrh, apparently been led somewhat away from the line of thought the title of this paper would naturally suggest. But it was not intended to enter into the details of therapeutics, but rather to endeavor to formulate the broad principles upon which the present very efficacious methods of treating nasal disease are based. The indications for treatment are clear. First. To secure free nasal respiration and so obtain normal nasal function. Second. To prevent the collection and inspissation of nasal secretions by insisting upon healthy nasal drainage. Third. To abolish over-sensitive areas in the nasal chambers which have been found to occasion near and remote reflex disorders. Fourth. To do away with the frictional irritation arising from contact of the distended turbinated bodies either with a deviated nasal septum itself or the convexities of bone and cartilage projecting from the nasal septum.

ARTIFICIAL MENSTRUAL SUPPRESSION.

By A. REEVES JACKSON, M.D.,
Professor of Gynecology in the College of Physicians and Surgeons, of Chicago.

At a meeting of the Gynecological Society of Chicago, on November 16, 1888, I read a paper entitled "On Some Uncured Cases of Uterine Hemorrhage," which was subsequently published in The Medical News. In closing the discussion which followed the reading of the paper, I made the following statement:

> "Loewenthal has reported several cases in which he used hydrastis for preventing menstruation in persons to whom it (menstruation) was injurious; chlorotic and anæmic patients, he affirms, have been effectually cured by the use of hydrastis, given so as absolutely to obliterate the function of menstruation."

The subject of the artificial suppression of the menstrual discharge thus alluded to would seem to have excited a good deal of interest, for I have received several letters from physicians in various parts of the country asking for details concerning this method of treatment.

The statement, I may at once say, was erroneous. It was *not* Loewenthal, but M. Kugelman who is said to have "easily obtained suppressions by the use of hydrastis canadensis."[1] Loewenthal's method consists in the use of vaginal injections of hot water (122° F.) and rest in bed for a time. A paper embodying his experience in this mode of treatment appeared in the *Bull. Génér. de Thérap.*, and a

[1] American Medical Digest, 1886, p. 131.

summary of the same was reported in the *American Med. Digest.*[1]

Contrary to the general belief that when the menstrual discharge becomes suppressed without appreciable physiological cause efforts should be made to induce its reappearance as a necessary condition of health, Loewenthal holds the opinion that in many women, who are not in good health, the menses, far from being salutary, are pernicious; and that when nature does not suppress the flow under such circumstances it becomes the duty of the physician to do so. His experience with this method is given in the paper to which I have referred, and comprises 23 patients, of whom 18 were chloro-anæmic, 2 were hysterical, and 3 convalescent from severe maladies.

"The chloro-anæmic patients were cured in this way without further treatment. The amelioration was rapid, and generally followed the first artificial suppression. In one case, a cure was effected only after eight suppressions. Of the two hysterical patients, the condition of one only was ameliorated. No report is given concerning the convalescents. Loewenthal observed no evil results in any case following complete artificial suppression of the flux."

For the past six years I have endeavored to lessen, as completely as possible, the amount of uterine hemorrhage, whether menstrual or intermenstrual, in all cases in which the saving of blood seemed to be an important indication, and the means upon which I have especially relied latterly for this purpose has been the use of the vaginal tampon, substantially in the manner recently recommended by Dr. E. C. Gehrung, of St. Louis.[2]

I prepare twenty to thirty masses of absorbent cotton by dipping them in a mixture of vinegar and water, one part to four, and squeezing them until they are merely damp. They should have the size of a small walnut, but should be pressed into the form of a flattened disk. I then place the patient in a knee-chest posture, with the hips elevated as much as possible, and introduce a bivalve speculum. This permits the entrance of atmospheric air, and the vagina is widely expanded. With a pair of uterine dressing forceps the cotton disks are then placed; first, around the vaginal portion of the cervix, then over and against the os uteri, and, finally, the others are placed evenly in place until the upper two-thirds of the vagina are occupied. The disks should be placed with only a moderate degree of firmness, otherwise pain may follow the procedure. If the lower third of the vagina be left vacant the patient will experience no difficulty in urination, and may thus avoid the necessity for catheterization. At the end of twenty-four hours I examine the lower tampons through the speculum, and if they be bloody I remove the entire packing and replace it. If they are free from stain, I permit them to remain another period of twenty-four hours before removal. Sometimes a single tamponade suffices, while in other cases I have had to repeat it five or six times.

I have found this method of treatment especially valuable in cases of bleeding myomata. In many of these, after the failure of curetting, ergot, and hydrastis to check excessive hemorrhage, I have succeeded by the systematic employment of the tampon, inserted as soon as possible after the commencement of hemorrhage, in reducing the amount lost to not more than one-tenth of what the patient had previously sustained.

I have observed fairly good results from the use of ergot in a number of instances, and excellent results in a few. But in nearly all of these the uterus was in a soft, bulky condition, such as is found in the early stages of subinvolution and in some cases of fibro-myomata.

In consequence of the recommendation of Prof. Schatz, of Rostock, Germany, who first brought into prominent notice the action of hydrastis canadensis as a uterine tonic, and the subsequent corroborative experience of Dr. R. W. Wilcox, as reported in the *New York Medical Journal*, I have used that drug in several cases of excessive menstruation. Although its action is said to resemble that of ergot, I found it most useful in those cases in which ergot had utterly failed. My experience with it has not been so satisfactory as that of the writers whom I have mentioned. The dose should be twenty drops of the fluid extract, or one-quarter to one-half a grain of hydrastin three or four times a day.

Loewenthal's reported success with the use of hot water injections greatly surprises me. While it is well known that the application of water at a temperature of 120° or over, when continued for twenty or thirty minutes, will cause a temporary blanching of a mucous membrane, this effect does not last very long, and if the part be examined an hour later it will be found turgid and red from the reactionary congestion. If the application of the heat could be continuously maintained for hours rather than minutes the effect would, doubtless, be more satisfactory. As a repressor of uterine hemorrhage hot injections have failed in my hands.

While I would advise the use of ergot and hydrastis as adjuvants to the tampon, when the object is to diminish the amount of uterine blood loss, I have come to the point of feeling confidence only in the latter remedy. Yet, I have to say that in not a single instance have I succeeded, with any or all of the means mentioned, in effecting a permanent suppression of the menstrual function during the period of active sexual life.

[1] Loc. cit.

[2] "Repression of Menstruation as a Curative Agent in Gynecology." Amer. Journ. Obs., November, 1888, p. 1138.

MEDICAL PROGRESS.

Chloroform as an Internal Remedy.—Dr. Stepp, of Nürnberg, noting the observations of Salkowski on the disinfecting power of chloroform water, determined to make trial of chloroform internally in a considerable number of diseases. It may here be remarked that the use of chloroform in aqueous or spirituous solution is less common in Germany than in this country, where the familiar so-called "æther chlor." forms a portion of a very large number of prescriptions. In gastric ulcer Dr. Stepp gave chloroform (fifteen grains in a five-ounce bismuth mixture) with great effect, and believes this to be due to its disinfecting, astringent, and stimulating properties. In various affections of the mouth and throat—as follicular pharyngitis, catarrh of the pharynx, gingivitis, and diphtheria—washes and gargles containing chloroform proved very beneficial. In one case of severe psoriasis of the mucous membrane of the mouth, which had been unsuccessfully treated by several medical men, chloroform water effected a complete cure. Two cases of pneumonia treated with chloroform did so well that Dr. Stepp means to make a further trial of it in this disease. Perhaps the most encouraging results were obtained in cases of typhoid, though only six of these were thus treated. The value of chloroform in some cases of fever was, we believe, shown some twenty-five years ago in the Dublin hospitals, but it has never come into general use even in this country as an antipyretic.—*Lancet*, March 9, 1889.

Use of Menthol Internally.—The *Wiener klin. Wochenschrift* of March 7, 1889, states that menthol, which, on account of its great anodyne action, has been largely used as a local application, has of late been administered internally as an antineuralgic in hemicrania, infraorbital neuralgia, and headache, as well as for the relief of the pain of rheumatism and sciatica, in doses of from four to fifteen grains.

Dr. Mac. Laury (*Therap. Gazette*) gives the following prescriptions for the administration of this preparation:

℞.—Alcohol . . . . . ℥j.
Menthol . . . . . ℥ij.
Glycerin . } . . āā ℥j.—M.
Simple syrup }

One teaspoonful in warm water when required.

℞.—Menthol . . . . . ℥j.
Sugar of milk . . . . grs. ix.—M.

Administer in 12 capsules; one or two capsules to be taken daily.

Menthol can also be combined with antifebrin and antipyrin, as in the following:

℞.—Menthol } . . . āā ℥j.
Antifebrin }
Sugar of milk . . . . q. s.—M.

To be divided into 24 powders, administered in capsules; two capsules to be taken daily.

New Antidote for Morphine.—Prof. Bokai, of Klausenberg, believes that the best antidote for morphine is picrotoxin. The two substances act in an opposite manner on the respiratory centre, morphine paralyzing its action, while small doses of picrotoxin increase it. As in poisoning by morphine death occurs from paralysis of the respiratory centre, and as picrotoxin hinders this paralysis, it follows that picrotoxin is likely to be of real use in morphine poisoning. In morphine poisoning, diminution of the blood-pressure plays an important part, but picrotoxin enjoys the property of stimulating the vaso-constrictor centre of the medulla and thus counteracts the effect of the morphine. Once again, the action of these two substances on the cerebral hemispheres is also of an opposite character. As atropine, the only known antidote of morphine, cannot be administered in large doses, it is certainly desirable that other means of combating morphine poisoning should be sought for. Prof. Bokai thinks that picrotoxin may be useful as a substitute for preparations of nux vomica, and he also believes that it will be found of value in preventing chloroform asphyxia.—*Lancet*, March 9, 1889.

Antiseptic Vapors in the Treatment of Diphtheria.—Dr. Daniel Paterme (*Bull. gén. de Thérap.*, vol. 38) bases this mode of treatment on the assumption that diphtheria is at the beginning a general affection and that the local symptoms always follow the primary general infection. Diphtheria demands therefore not a local, but a general antiseptic treatment.

The mode of treatment advocated by Dr. Renon would thus be in place here, which is: 1st. Saturating the inspired air with steam which has been thoroughly impregnated with antiseptic substances. 2d. A nourishing diet and the administration of tonics such as quinine. 3d. Not touching the throat at all.

Renon uses as an antiseptic a solution of carbolic and salicylic acids in alcohol; of this one tablespoonful is added every three hours to four pints of boiling water.

The cases treated by the author were: Thirty cases of diphtheria of the respiratory passages, 29 with croup, with 24 recoveries and 6 deaths; 23 tracheotomies with 18 recoveries (amongst the latter were 3 infants aged eleven, twenty-one, and twenty-four months respectively).—*Centralbl. f. d. ges. Therapie*, March, 1889.

A New Aliment.—Dr. Dujardin-Beaumetz recently exhibited at the Academy of Medicine a new alimentary substance, "fromentine," which is obtained from wheat by the aid of special mill-stones. Fromentine is the embryo of the wheat reduced to flour. It contains three times more nitrogenous substance than meat, and a strong proportion of sugar. Hence it would appear that it might advantageously replace powdered meat as a concentrated food. It may be employed for making soups, and even for making biscuits, the taste of which would not be disagreeable.—*Lancet*, March 9, 1889.

Eseridin.—Eseridin is a new alkaloid of calabar bean discovered by Dr. Bihringer; it is closely related to physostigmine. In medicinal doses it produces diarrhœa. Its toxic doses are six times as large as those of physostigmine; the production of intestinal mucus seems to be increased by its administration. It can be used as a laxative like physostigmine, or as a motor excitant; it has not the cumulative action of strychnia. Contraindications to its administration are diseases in which the brain and spinal cord are over-stimulated.—*Deutsche med. Wochenschrift*, Feb. 28, 1889.

Resection of the Ensiform Cartilage.—An important paper has recently been presented to the Royal Academy of Medicine and Surgery of Naples by a young surgeon, Dr. Rinonapoli, of Collamele, in the province of Aquila, giving the details of an operation for resection of the ensiform cartilage. Only one such case has been previously recorded—by Linoli, in 1857. A man was injured by a horse rearing and falling back upon him. His chest was violently compressed, and the ensiform cartilage dislocated backward. The displaced cartilage, by its pressure on the stomach, was productive of very severe gastric disturbance, which at length became so great that not even the smallest quantity of milk could be taken without terrible pain. The patient rapidly wasted away, and his life was despaired of. Various diagnoses were made, but it was left for Dr. Rinonapoli to discover the true state of affairs. Being convinced of the accuracy of his diagnosis, and, fortified by the opinions of two colleagues, Dr. Rinonapoli gained the consent of the patient and his friends to an operation. The minutest antiseptic precautions (carbolic acid and perchloride of mercury) were observed. An incision six centimetres long was made, the upper third being over the sternum. Dissection was carefully carried down to the peritoneum, which was not opened. The cartilage was separated from the structures enveloping it, and, finally, its attachment to the sternum was divided by passing a probe-pointed bistoury behind and cutting forward. The wound was carefully cleansed and brought together by sutures. In the course of five weeks the patient had completely recovered. The points of interest connected with the case are: 1. That it is only the second recorded. 2. The peritoneum was not opened. 3. It was undertaken by a young surgeon in a country district in Italy, who, with the assistance of two other country surgeons, carried it through in the most praiseworthy manner. Dr. Rinonapoli worthily won his admission to the Royal Academy of Medicine of Naples, for which Professor Fusci stood his sponsor.—*Lancet*, March 16, 1889.

Rectified Oil of Turpentine in the Treatment of Idiopathic Croup.—DR. M. LEWENTANER, in the *Centrabl. f. klin. Med.*, No. 8, 1889, reports the two following interesting cases of croup treated with this drug: A two year old boy suffered from a cold the symptoms of which (hoarseness and stenosis), became so alarming that the little patient was brought to the hospital to undergo the operation of tracheotomy. On the seventh day of the illness Dr. Lewentaner found the child suffering from asphyxia, with pale face and pulse hardly perceptible. He immediately administered a coffeespoonful of rectified oil of turpentine and ordered ice compresses to be applied to the throat. The following day improvment was marked, one coffeespoonful of oil of turpentine being found sufficient to cause expectoration of the membranes. The following mixture was then administered:

℞.—Rectified oil of turpentine	4	parts.
Sweet oil of almonds	10	"
Simple syrup	20	"
Mucilage of gum arabic	40	"
Yolk of egg	15	"
Cinnamon water	50	" —M.

Dose, a coffeespoonful every two hours.

The child recovered entirely.

The second case was a four year old boy, who had been treated unsuccessfully for eight days. Dr. Lewentaner found him to be suffering from severe croup with stenosis of the larynx. He immediately administered one coffeespoonful of oil of turpentine and then ordered the following to be inhaled day and night:

℞.—Oil of turpentine, Tincture of eucalyptus globulus, Carbolic acid,	āā	4 parts.
Alcohol	300	"
Distilled water	696	" —M.

Immediately after the turpentine had been taken the child coughed freely and expectorated some slimy-purulent sputum and gray-white membranes, which latter had the exact cast of the trachea. The membranes forming again, the author administered the following morning and evening, and also on the morning of the third day, one coffeespoonful of the oil of turpentine. Complete recovery followed. Dr. Lewentaner attributes the recovery of these two cases to the specific action of turpentine.—*Wiener med. Presse*, March 10, 1889.

A Tracheotomy Tube in the Bifurcation of the Bronchi.—A somewhat remarkable case is reported by Professor Pieniczek in the *Przeglad Lekarski*, where a caoutchouc tracheotomy tube, which had been inserted ten years previously, suddenly slipped and fell down the trachea so as to be completely lost to sight. At first the patient, who was an elderly man, coughed violently, but after a little while the irritation entirely ceased, and though he could feel the presence of the foreign body at the third and fourth costal cartilages on the right side, it did not occasion him any serious inconvenience. It had remained *in situ* about seven weeks when it was removed. In order to accomplish this the patient was chloroformed, and as sufficient anæsthesia for the purpose was not procured by this means, the mucous membrane was painted with a twenty-five per cent. solution of cocaine. By means of a laryngoscopic mirror introduced into the laryngeal opening, the foreign body could be distinctly seen and its position made out. It was lying at the bifurcation, its convexity upward, and its larger end directed toward the right bronchus. With the help of the mirror, a blunt hook was passed down to the tube in such a manner that it was caught up and so extracted. Professor Pieniczek remarks that it would have been almost impossible to secure the tube without the aid of the mirror, as its position could not otherwise have been determined, and without an exact knowledge of this any manipulation with instruments would have been dangerous and probably useless.—*Lancet*, March 16, 1889.

The Value of Iodol.—DR. TALENTI, from his experiments with powdered iodol, arrives at the following conclusions:

1. Iodol applied directly to the eye is not an irritant.

2. Its use is indicated in solution of continuity of the cornea. Introduced into the anterior chamber it exerts no injurious action on the iris.

3. Its application is of great service in catarrhal conjunctivitis and in hypopyon of keratitis.

4. Iodol in the form of powder is more efficacious than the ointment.

5. The different results obtained by different authors are due to the various manners of application.

6. Being non-irritant, inodorous, and not more expensive than iodoform and possessing all the antiseptic qualities of the latter, it should replace it.—*Revue gén. d'Ophtalmologie*, January, 1889.

Muscular Atrophy in Pregnancy.—M. Denos has recently described an interesting case of muscular atrophy developing with great rapidity in all four extremities during pregnancy already complicated with uncontrollable vomiting. The patient was thirty-one years old, already exhausted by two previous pregnancies, by severe metrostaxis, and by an obstinate skin affection. During the third pregnancy uncontrollable vomiting set in. Toward the end of the fourth month the muscles of the lower extremities began to atrophy. Three or four days later the arms were involved. Pain and formication were complained of by the patient. Cutaneous, muscular, and electrical sensibility were preserved. The functions of the bladder and rectum remained intact. The temperature was subnormal, and the intellectual faculties, especially the memory, were weakened. Premature labor was induced after due deliberation. The patient recovered from confinement, and at once her general condition improved. In the course of two months' holiday in the country, with liberal diet, the atrophied muscles began to regain their normal condition. As galvanism caused sharp pains, she refused to allow its application to the affected parts. On her return to Paris, however, it was employed in conjunction with wet packing. In the following spring the patient was able to walk, leaning on two sticks. She was once more sent to the country for two months. On her return she appeared to be cured. From a skeleton-like condition she had become actually corpulent. This remarkable case was read before the Paris Académie de Médecine on January 15th.—*British Medical Journal*, March 16, 1889.

A New Method of Treatment for Epidemic Diphtheria.—Dr. A. Hennig, of Königsberg, recommends, in the *Berl. med. Wochen.*, Nos. 7 and 8, a new method of treating epidemic diphtheria, the advantages of which lie in its extreme cheapness and easy mode of application. Out of 1054 cases treated the mortality was, both in epidemic and scarlatinal diphtheria, but 2.7 per cent., and in epidemic diphtheria alone only 0.9 per cent. The mode of treatment consists in the use of lime-water and applications of ice. When the disease affects the mouth and throat, and not the nasal cavity or nasal membranes, the author directs the patient to gargle every fifteen or thirty minutes, according to the severity of the disease, with lime-water, and after every act of gargling to swallow from three to five drachms of the liquid, according to the patient's age. Those who are unable to gargle, take the drug internally in doses of from five drachms to one ounce; while for those who are neither able to gargle nor to swallow a spray should be used. This spray, however, should only be applied during inspiration, as the carbonic acid of the expired air, acting upon the lime-water, forms a carbonate of lime, thus rendering the action of lime-water entirely useless. The quantity of lime-water swallowed amounted often to six pints during twenty-four hours, which could be taken without apparently injuring the organism. The lime-water should be frequently freshly prepared, for when allowed to remain exposed to the air for any length of time a white skin forms from the carbonic acid in the air, which later interferes quite perceptibly with the action of the lime-water. With the ice-bag to the neck and lime-water internally the temperature falls considerably, the pulse becomes stronger, swallowing much easier, and the process of exudation abates gradually.

In nasal diphtheria the author simply irrigates the nasal passages with lime-water, which generally suffices to remove the local process. Should the affection involve the larynx, spraying the parts with, and the internal administration of, the lime-water will overcome the affection. Diphtheritic affections of the conjunctiva, or vagina, are treated by the frequent application of wadding saturated with lime-water.

It is the author's opinion that lime-water prevents the further development of the specific causative agent, influences the coagulation of the living albumen, thus preventing any further action of the microbes, and through its power of solving mucin detaches the membranes, which are expectorated. Dr. Hennig thus claims that lime-water is a specific for diphtheria, and that this mode of treatment destroys the fatality of this disease occurring after the sixth year of age, as among 1054 cases not a single death occurred in patients over six years of age, although fully 60 per cent. of the cases treated had passed that age.—*Wiener med. Presse*, March 10, 1889.

Popliteal Aneurism Treated by Digital Compression.—Dr. G. L. Richards reports (*Trans. Rhode Island Medical Society*, 1888) a case of aneurism of both popliteals in a man aged fifty-three years, cured by digital compression lasting in one forty-four and a half hours, and nine months later, in the other, fifty hours.

Antipyrin in Sciatica.—Dr. Gabriel Covarrubias, of Limache, reports (*Revista Medica de Chile*, December, 1888) a case in which he cured sciatica with antipyrin. The patient had been confined to his bed for two months, and was unable to move his left leg. The hip-joint was so painful that the gentlest examination with the fingers could scarcely be borne. The slightest pressure over the gluteal, sciatic, and trochanteric regions made the patient cry out with pain. Sleep had been impossible for some nights, and there was considerable wasting. The severity of the symptoms, coupled with the fact that there was slight rise of temperature every evening, led Dr. Covarrúbias to suspect the existence of an iliac abscess; an exploratory puncture was therefore made, with a negative result. Sciatica having then been diagnosticated, injections of morphine in the infected part, anodyne applications, general antirheumatic treatment, salicylate of soda, iodide of potassium, sulphate of quinine, tincture of gelseminum, bromide of potassium, etc., all were tried without the least effect. Tonic treatment with iodide of iron, cod-liver oil, etc., proved equally futile. Antipyrin was then given in doses of eight grains, with an equal quantity of quinine, three times a day. The day after this treatment was begun the patient wished to get up; the pain had ceased, and he could move the affected limb quite freely. Ten days afterward he left the hospital completely cured, and having gained considerably in weight.—*British Medical Journal*, March 16, 1889.

Codeine and its Uses.—DR. FISCHER reports (*Correspondenzbl. f. Schweizer Aerzte*, 1888, 19; *Bresl. artzl. Zeitschr.*, 1889, 2) that for the past five years he has used codeine in all cases in which morphine was indicated, and has found it of service in the treatment of phthisis, in bronchitis, and in all cases of sleeplessness not due to severe pain. Externally as well as in the form of suppositories or fluid inhalations or ointments the results were satisfactory, no unfavorable symptoms whatsoever being observed. A dose of ⅓ to ½ grain of codeine is equal to ⅙ grain of morphia. The best forms for administration are pills, powders, or syrups. In ordering pills each pill should contain from ⅓ to ¾ grain of codeine. This mode of administration will be found the best when treating abdominal pain or diabetes:

℞.—Codeine . . . . . 15 grs.
Extract of gentian } . . . q. s.—M.
Powdered licorice }
Make thirty pills.

For irritable coughs the syrup is preferable, the French formula of which is:

℞.—Codeine . . . . . 4 grs.
Alcohol . . . . . ℥iss.
Syrup . . . . . ℥iij.—M.

Dose, one tablespoonful.—*Med.-Chirurg. Rundschau*, February 15, 1889.

Hepatic Abscess Bursting into the Pericardium.—DR. JOAQUIN L. JACOBSEN, of Havana, reports (*Revista de Ciencias Medicas*, February 20, 1889) a case in which an abscess of the liver, which was not recognized during life, was found after death to have burst into the pericardium. The complication is so rare that Dr. Jacobsen has been able to find only ten cases previously recorded. The patient was a white man, aged thirty-nine, who had been a heavy drinker, and had suffered from malaria. He had been troubled for about a year with dyspeptic symptoms. He was pale and slightly jaundiced, and had lost flesh. Both the liver and the spleen were enlarged, and there was some tympanites. He complained of constant pain, sometimes referred to the epigastrium, sometimes to other parts of the abdomen. Percussion in the epigastric region caused a little pain, but gave a normally resonant note. He was treated with purgatives and alkalies, and a blister to the epigastrium. The enlargement in the region of the liver increased, but no fluctuation could be detected, and there were no signs of adhesion. Symptoms of intestinal obstruction came on soon afterward, with marked tympanites and dyspnœa, and three days after the commencement of this new phase of his illness the patient died. At the necropsy the lungs were found contracted and pushed toward the posterior and upper part of the thorax; the parietal layer of the diaphragmatic pleura was thickened and congested; the pericardium, which was also thickened, contained a large amount of seropurulent fluid, dark yellow in color; the outer surface of the heart, which was rough and granular, was of the same color. At the lower part of the pericardium, slightly to the left of the middle line, there was an opening with ragged edges, about one and one-third inches in diameter, passing through the diaphragm and communicating with an irregular opening in the posterior part of the convex surface of the left lobe of the liver. For some distance around this opening there were firm adhesions to the diaphragm. The liver was enlarged and somewhat hardened; its right lobe was congested, and in the left there was a large cavity measuring five inches in the transverse by four inches in the vertical and antero-posterior diameters, and full of yellow pus. The spleen, which was enlarged and softened, presented two large, milky-looking patches on its outer surface. The gastro-intestinal mucous membrane was thickened and injected. All the other organs were healthy.

Dr. Jacobsen points out that the abscess was in the posterior part of the liver, leaving a considerable portion of the front part of the left lobe untouched, while the symptoms did not clearly indicate any affection of the liver beyond what was consistent with the patient's gastro-intestinal disorder and alcoholic antecedents. Exploratory puncture could hardly have been successful even if it had been thought justifiable.—*British Medical Journal*, March 16, 1889.

Treatment of Phlegmasia Dolens.—

℞.—Extract of opium }
" of belladonna }
" of hyoscyamus } āā 3 parts.
" of hemlock }
Vaseline . . . . . 30 " —M.

This ointment to be applied along the course of the inflamed vein.—*L'Union Médicale*, March 9, 1889.

Simultaneous Extirpation of the Spleen and a Kidney.—At a recent meeting of the New York Surgical Society, DR. R. F. WEIR presented a lacerated spleen and a kidney with its emulgent veins torn across, which he had removed by laparotomy from a girl aged eleven, who, twenty hours previously, had fallen a distance of twenty feet and sustained abdominal injuries, most marked in the left side, and demanding surgical interference, as the patient's condition had been fairly good. The peritoneal cavity had been found filled with blood, over a pint being eventually removed. The kidney, dislocated downward to the level of the iliac crest and surrounded by a large amount of blood which had escaped into the retroperitoneal tissue, projected so much toward the middle line as to require an immediate investigation, which was made by cutting through its peritoneal covering. It then appeared that it was held only by its artery, its emulgent veins being torn across. The artery had accordingly been tied and the kidney removed, and lumbar drainage had subsequently been made. After the renal extirpation, bleeding still going on, a rapid examination had shown that the source of the bleeding was in the spleen, which was deeply lacerated on its median aspect above the hilum. This also had been easily brought into view, its vessels clamped, and the organ removed. The stump held in the clamp had then been readily tied; the abdominal cavity had then been sponged out and the wound closed. For a few hours it had seemed as if there was a decided hope of the patient's recovering, even from such a severe surgical procedure. However, death had ensued nine hours after the operation.—*New York Medical Journal*, March 30, 1889.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, APRIL 6, 1889.

THE MEDICAL EXAMINERS' BILL IN PENNSYLVANIA.

MEDICAL thought in these times moves rapidly. It was but the other day that only the most advanced leaders in medical education asserted the necessity for a three years' graded medical course. Now, we find among our leading teachers from the various colleges in this city a number insisting on four years, and even asking that it be made legally compulsory. Again, when the idea of a State Board of Examiners was first broached, a few years since, it was scouted at and utterly rejected, especially by the teachers, who naturally opposed having their work revised by any such Board. Now we find its leading friends are from this same class.

The recent bill introduced into the Pennsylvania Legislature at the instance of the State Medical Society was a perfectly fair bill. It left the selection of the personnel of the Board to the Governor, and the profession were well content to trust any fair-minded Governor, with the advice and consent of the Senate, not to pack the Board in the interest of any one school, no matter what his personal predilection might be. The amendment added to it at the instance of the homœopathists and eclectics has a specious appearance of fairness, in that it absolutely prevents the Governor from appointing a majority of the Board from any one school; but its real unfairness is seen when we consider the fact that practically there are but two schools, the regulars and the irregulars, and that if any question should arise touching the relations of the different schools, the homœopaths and eclectics would, of course, unite in opposition to the representatives of regular medicine. The latter being relegated to a perpetual minority, by this amendment, the irregulars could always carry out any plan of examination that they might agree upon. It is especially to be remembered that this legal "minority" represents 6000 regular physicians, and that the "majority" represents about 700 homœopathics and 300 eclectics.

Any one familiar with the status of medical education must know that even in the ranks of the regular profession (the teachers being barred out) it will not be very easy to obtain first-class examiners, thoroughly educated, abreast of the times, both able and willing to assume the duties incumbent on such a Board. Any one familiar with the status of education among the homœopaths and eclectics knows perfectly well that not only is a choice more difficult from their ranks, because it must be made from about 1000 instead of 6000 physicians, but also from a body of men, as a rule, vastly inferior in their scientific attainments; and yet it is from this less scientific minority that the majority of the Board *must* be selected, according to the amendment. How likely would such a majority be to enforce thoroughly the examination that ought to obtain, especially when thoroughness would presumably tell most against their own friends?

The friends of the bill, however, are so earnest in their desire for a better medical education that they are willing to accept it, deeming it at least as the first step, and also believing that our colleges will be careful to graduate only such men as will be able to pass such examinations as a fair-minded Board, however composed, would formulate. But in order that the inevitable tendency of the amendment toward a poorer education shall be counteracted, they have urged a further amendment that every candidate must be a graduate of a medical college having at least a four years' graded course. Some of our best teachers insist upon the need of such a period of study, and claim that the present three years' course is overcrowded with work, and that much work that is essential has to be omitted for want of time.

Whatever may be the outcome of the bill, it is a most hopeful sign of the times that the teachers of the State are not afraid to ask inspection of their work by a Board of Examiners, and are the most ardent advocates of a longer course of study.

RELATIONS OF PATHOGENIC BACTERIA IN DRINKING-WATER.

THE *Deutsche med. Wochenschrift*, No. 2, 1889, contains the results of an investigation conducted by KRAUS in order to determine the relations of different pathogenic and saprophytic bacteria in unsterilized water, which possess considerable interest. First of all, he found no other colony form which bore more than the slightest resemblance to the pathogenic organisms under investigation, namely, Koch's vibrio, the anthrax bacillus, and the bacillus of typhoid fever. He also found that these pathogenic organisms when added to ordinary well or river water soon became incapable of development and disappeared in the course of a few days. No trace could be discovered of Koch's vibrio twenty-four hours after it had been added to the water. The typhoid bacillus could not be detected in the water after six days, and the anthrax bacillus after three days. As both the typhoid bacillus and Koch's vibrio were still capable of development in sterilized water after, respectively, thirty-two and eighty-two days, the inference was that the rapid disappearance of these bacteria was due to the direct action of the common water bacteria. The destruction of the pathogenic bacteria occurred as rapidly in fresh spring water as in the most polluted well-water.

Prof. Koch has demonstrated the fact that the comma-bacillus succumbs to the ordinary putrefactive bacteria, and the results obtained by Kraus show that the water bacteria are allied to the microbes of putrefaction in the nature of their work.

Under ordinary conditions, a limitation tending to the suppression of pathogenic bacteria in water takes place by the domination of harmless forms of microörganisms which deny the means of growth to the less favored pathogenic species. Through this natural proscription the infection of water is probably restricted and in time eliminated.

As most natural waters contain bacteria, it may be assumed that there is always present in water an active, vital agency tending to antagonize and overwhelm, in the struggle for existence, the living morbific organisms, as well as to bring about the transformation of dead organic matter, and that this agency is persistently active until the work of purification is accomplished. If the correctness of this view is established, it gives us further insight into the mode by which water tends to self-purification.

AN Army Medical Board will be in session in New York City, from May 1st to 31st, for the examination of candidates for appointment in the Medical Corps of the Army, to fill existing vacancies, of which we understand there are eight. Persons desiring to present themselves for examination will make application for the necessary invitation to the Secretary of War, before May 1, 1889, stating the place of birth, place and State of permanent residence, and enclosing certificates based on personal knowledge from at least two persons of repute, as to American citizenship, character, and moral habits. Testimonials as to professional standing, from professors of the medical college from which the applicant graduated, and of service in hospital from the authorities thereof, are also desirable. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a *regular medical college*, evidence of which, his diploma, must be submitted to the Board. Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

THERE has been great activity of late in the Philadelphia Polyclinic. New chairs, of Diseases of the Mind and Nervous System, and of Obstetrics and Diseases of Children, have been established, Drs. S. Weir Mitchell and Edward P. Davis having been elected to the respective professorships. Dr. Mitchell's service at the Infirmary for Nervous Diseases, and Dr. Davis's Maternity Wards at the Philadelphia Hospital, are thus added to the other clinical and hospital facilities. Dr. B. Alexander Randall has been elected Professor of Diseases of the Ear, in place of Dr. Burnett, resigned. Professor Randall has the Ophthalmic and Aural Clinics of the Children's and Episcopal Hospitals.

The hospital accommodations of the present building being insufficient, a large lot, on Lombard Street above Eighteenth, about four blocks from the present location, has been purchased, and work on a new building is being pushed. The Appropriation Committee of the State Legislature has recommended a grant of $20,000 from the Charities Fund, to aid in the erection of the new hospital, provided the institution raises an equal amount. Subscriptions to this end are being solicited, and about one-half the necessary sum has thus far been secured.

Several new departments of instruction have been added under charge of Professors of existing Chairs; notably the Department of Massage (Professors Mills and Wilson), the Special Ophthalmological Course

(Professors Harlan and Jackson), and the Diet Kitchen (Professor S. Solis-Cohen).

At their recent commencements, the degree of Doctor of Medicine was conferred by the respective institutions as follows: Jefferson Medical College, Philadelphia, 212; Missouri Medical College, St. Louis, 82; St. Louis College of Physicians and Surgeons, 54; College of Physicians and Surgeons, Baltimore, 67; Western Reserve University, Cleveland, 43; Western Pennsylvania Medical College, Pittsburg, 36; Ensworth Medical College, St. Joseph, Mo., 9,

Scarlet fever, diphtheria, and measles are extremely prevalent in New York City, as shown by the statistics of the Board of Health for the month of March. The cases of scarlet fever were 1709, while for the corresponding month of last year they numbered but 613. Cases of measles more than trebled, increasing from 236 in March, 1888, to 800 in the month just passed. Diphtheria shows a much smaller percentage of increase, the number of cases for March, 1889, being 811, while in the corresponding month last year the number was 534.

An act empowering the Governor of Florida to appoint three citizens as a State Board of Health has been passed by the Legislature. This Board is to appoint a physician as secretary and State Health Officer, with a salary of $3000 per annum.

The Lacaze prize of 10,000 francs has been awarded to Dr. Malassez, Director of the Laboratory of Histology of the College of France, for his work on tuberculosis.

The Queen has seen fit to recognize the services of that noble sanitarian Chadwick, now that he has passed his ninetieth year, by the bestowal of knighthood. Sir Edwin Chadwick, K.C.B., has been in the forefront of nearly every reform in England for sixty years, and it will be difficult to name a man in this generation whose career has been more beneficent or knightlier than his. His large brain and dignified character have been unreservedly devoted to the cause of the lowly and oppressed.

By the death of Dr. Palmer Howard Canada loses her most distinguished physician, and the profession on this continent one of its best known and most respected members. He had early achieved marked success in practice, and of late years had been the chief consultant in medical cases in the Dominion. An intelligent student, he had, during his long career, contributed extensively to periodical literature, more particularly in Canadian journals, but in the volumes of the *American Journal of the Medical Sciences* are to be found several important papers from his pen, the last but a few months ago. His writings are characterized by unusually clear judgment, careful and thorough observation of facts, and a wide knowledge of current medical literature.

As a promoter of medical education he had labored incessantly, and in the establishment of the provincial medical Boards which form so striking a feature in our neighbors' professional system, he took for years a most active part. As a clinical teacher he did much to establish that thorough system of bedside instruction which prevails at the Montreal General Hospital. During his term as Dean of the Medical Faculty of McGill University, this school has taken a prominent part in the development of advanced modes of medical teaching, and mainly through his efforts an endowment was secured a few years ago and extensive laboratories equipped. Earnest and enthusiastic, with a zeal which seemed to increase with years, the profession has rarely had a more devoted member. In him, too, were combined higher qualities of mind and heart which served to complete an exceptionally attractive character. To his colleagues in Montreal, and to the profession in Canada, we extend our warmest sympathies in their sad bereavement. We hope next week to lay before our readers a brief sketch of Dr. Howard's life.

Dr. Edward T. Bruen, Assistant Professor of Physical Diagnosis in the University of Pennsylvania, died of pneumonia last Sunday, after a brief illness. He was born in 1851, and graduated in medicine at the University of Pennsylvania in 1873. He was visiting physician to the Philadelphia and German Hospitals, and the author of a favorably known work on the "Physical Diagnosis of the Heart and Lungs," as well as of numerous contributions to our periodical literature. He was an earnest student, a close clinical observer, and a skilful practitioner, and his death is a loss to his profession and to the community in which he lived.

Dr. John Swinburne died at his residence in Albany on March 28th, from cancer of the stomach.

He was born in Denmark, Lewis County, N. Y., in 1821, and graduated in medicine from the Albany Medical College in 1846. He was soon made Demonstrator of Anatomy in the College, holding that position four years. In 1861 he volunteered, without pay, as an army surgeon, serving with distinction. In 1864 Governor Seymour made him Health Officer of the Port of New York, and during his six years in that office he established the quarantine service now existing. While abroad with his family in 1870, he took charge of the American ambulance in Paris during the Franco-Prussian War. For this service he was decorated by the French Government with the cross of the Legion of Honor. He returned to this country in 1873. Dr. Swinburne was also prominent in politics, and served as Mayor of Albany and a member of Congress.

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, February 25, 1889.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. S. SOLIS-COHEN read the notes of a case of

OBSTINATE SCIATICA CURED BY DEEP INJECTIONS OF OSMIC ACID.

The method of treating sciatica by deep injections of a solution of osmic acid, is so well known that the present case is reported only on account of its peculiar therapeutic history previous to the resort to the agent in question. Nearly every other medicinal and surgical means known had been tried faithfully but without good result. The details of the case are given merely to show that osmic acid was really the curative agent.

George D., brakeman, æt. forty-five, was admitted to the Department of Clinical Medicine of the Philadelphia Polyclinic, March 24, 1888. For twenty years the patient had had more or less pain in the lumbar region, of gradual development, attributed by him to the fall of a log upon his back while engaged in transport duty during the war. About thirteen months ago he began to feel pain in the right hip extending along the course of the sciatic nerve to the heel. The pain was constant with paroxysms of aggravation, very frequently preventing him from working or even standing erect. Sleep was continually disturbed. He had been under treatment first in the Department for Nervous Diseases, where the diagnosis of sciatica was made, and then in the Surgical Department, for about a year; having been subjected to the influence of a number of medicaments, including, among many others, arsenic, potassium iodide, antipyrine, and antifebrin; injections of atropine, morphine, and theine; electrical treatment had been employed; and among surgical procedures, blistering, nerve-stretching by elevating the limb during ether-anæsthesia, and, finally, nerve-stretching after incision and exposure. The latter operation was performed February 21, 1888. Immediately after the operation slight relief was experienced, although pain below the knee continued, and with the return of the power of motion in the limb, pain recurred as violent as ever; and had continued without intermission for about two weeks, except when the patient was under the influence of hypodermatic injections of morphine, without which he could not obtain sleep. He was then transferred to the general medical clinic. Salol being then under investigation, especially as to its analgesic properties, was prescribed tentatively in doses of about thirty to forty grains per diem. It gave relief, but not enough to warrant the hope of permanent good from its continued administration.

March 29. An injection of ten minims of a one per cent. solution of osmic acid was made deeply into the thigh in the neighborhood of the point of emergence of the sciatic nerve, just above the cicatrix of the incision for nerve-stretching. On each of the two succeeding days, fifteen minims were injected. Improvement now began to be manifested, although the pain continued to disturb sleep. Tri-weekly injections of twenty minims each were made during the next two weeks; a pill of morphine, belladonna, and quinine being given when necessary to produce sleep.

April 11. The patient was improved sufficiently to sleep without the pill.

19th. Improvement had steadily progressed, so that only a cane was used instead of crutches for walking. An injection of twenty minims was made higher in the buttock near the sciatic notch, pain being felt more especially at that point. Patient discharged from hospital.

May 17. The patient returned, stating that he still had pain, coming on at twelve or one o'clock at night and lasting until morning. He was free from pain during the day and could walk readily with the aid of a cane. An injection of thirty minims was made at the same point as previous injection.

January 1, 1889. The patient being sent for, reports that after the last injection he was so sore that he could not sleep that night. The soreness gradually abated, and two weeks later he was able to sleep without interruption during the whole night. Since then he has had no pain of any account. There is some weakness of the leg below the knee, and some improvement in the movement of the foot, but not enough to interfere with locomotion with the aid of a cane. He considers himself well.

DR. J. MADISON TAYLOR then called attention to

SOME POINTS IN THE TREATMENT OF SCIATIC NEURITIS. MASSAGE AND INUNCTION WITH A GLASS ROD.

The remarks were mainly intended to call attention to a simple device which he has used with success in the treatment of sciatic neuritis.

Probably the best treatment for sciatica is absolute rest. This, coupled with the use of continued cold, with galvanism, the repeated use of the actual cautery, or blisters, usually does much good. But oftentimes more is needed, in the shape of regulated exercise, passive exercise of the affected limb; in short, overstretching of the nerve by forced extension and flexion by a skilled manipulator, deep massage, and the like. These last

seem often to do as much or more than the more radical measures, but require the services of an experienced assistant, which many cannot afford.

A year or two ago a patient, suffering from an obstinate form of syphilis, which resisted treatment at the best hands in this country, went abroad and got practically well in the hands of a clever physician in Germany, by the use of our ancient ally mercurial ointment, applied in a very novel and effective manner. This consisted of a glass rod, the size of a section of broom-handle, two feet long, on which the ointment was smeared, and thence slowly and firmly rubbed into the skin. This combined the inunctions, which could thus be made very thorough and systematic, with deep massage of the tissues. It certainly seemed to effect a more thorough introduction of the drug into the circulation, for the ointment was thus made to disappear entirely into the skin. The firm, slow pressure thus exerted must have an immensely stimulating effect on the muscles, nerve sheaths, etc., as well as on the absorbents, and is of itself an excellent tonic. This method he has not yet been able to test thoroughly in cases of syphilis, but he confidently recommends it as offering great possibilities of rapidly impressing the system with mercury.

Having a patient suffering from chronic sciatic neuritis, on whom the skill of several specialists had been wrought in vain, he determined to apply this same method of treatment. He used an ointment of mercury, belladonna, and iodine, applied on a glass rod, for fifteen minutes at a time. Very prompt relief from pain was felt. Later he resorted to the use of the rod without the ointment, and with apparently equally good results. In a short time, two or three weeks, his case was practically cured. Since then he has used this method in many cases, usually in the hands of the patient himself—a most convenient plan. Its use is followed by a marked sensation of warmth and comfort. In one case, that of a gentleman who was obliged frequently to ride on horseback to his business out of town, the pain in both legs became intense at three or four o'clock in the morning, keeping him awake thereafter. Nothing so relieved this as ten minutes' deep massage with the rod. In a month pain which had resisted remedies for a year had gone.

Dr. Charles K. Mills did not think he had exhausted all the remedies known to our art in the treatment of the case reported by Dr. Cohen; but he remembered that the patient was treated by various methods, medicinal and otherwise. This was one of several cases in which he employed hypodermatic injections of theine. He believed that this patient received a large number of these injections. His success with this measure had been varying. In a few cases the patients had been benefited, but in the case reported to-night, and in others, the relief has been only temporary. The treatment of sciatica, like the treatment of chorea or rheumatism, is a subject about which we might talk for a long time simply enumerating the remedies that have been used. In his own practice he had a method of treating sciatica which, while it might not be scientific, was practical. He divided his cases into recent cases, old cases, and intermediate cases. Recent cases would commonly yield to such remedies as salicylate of sodium, oil of gaultheria, and analogous drugs, associating with this treatment the hypodermatic injection of morphia and atropia, and sometimes of theine. For the old cases he used some very old remedies, and often with greater success than some of the newer remedies. He had used turpentine with success after the method first recommended by Thomas King Chambers. He also used Donovan's solution in fair doses; also iodide of potassium and colchicum. In these cases he nearly always associated with the foregoing agents the use of cod-liver oil, massage, and electricity. On the whole, he got as good results from this treatment as from any other. He had also used the Adamkiewicz electrode, by means of which chloroform is applied externally and electrically. This treatment had proved successful in a few instances. All, of course, have used counter-irritation. The use of the hot iron certainly acted better than any other form of counter-irritation. So far as osmic acid is concerned, he had had very little experience. He had used nerve-stretching by the method without cutting, and in a few cases by cutting, but never with any marked success.

The case reported to-night is valuable and interesting, but the report of a single brilliant success with a remedy like osmic acid in a case like this, does not carry the full force of conviction as to its great value. The disease had existed for a very long time, it is true, and it finally yielded apparently to this agent, not long after surgical and other procedures had been used.

Dr. James Hendrie Lloyd last year treated a case of sciatica which he cured in eight months, and he wished to refer especially to what seemed to do the most good. He first applied the hot iron very thoroughly; he burned four holes along the course of the sciatic nerve. This afforded some relief, but did not cure the case. The man was sick for at least six months after this application. During this time he employed the usual remedies, salicylate of sodium in large doses, antipyrin, etc. He packed the leg in flowers of sulphur for a time without benefit. He then had an exacerbation of the pain and had to employ large doses of morphia hypodermatically. The injections were made deep into the muscles, but he must have used a syringe which was not aseptic, for abscesses formed. These were quite troublesome and burrowed through the muscles of the buttock, but the effect on the sciatica was very marked. Improvement began as soon as there was a free escape of pus. He supposed that this acted simply as another form of counter-irritant. He, however, did not recommend this as a method of treatment.

Speaking of one case not establishing a principle reminded him that in the first year of his practice he saw an obstinate case of sciatica in the person of his preceptor. After it had continued six months, the application of the hot iron in exactly the same manner as he employed it in the case referred to, was attended with brilliant success. From the time that he came out of the ether he never had a recurrence of the pain, and for the remaining two or three years of his life he had no return of the trouble.

Last year he saw removed, at the Philadelphia Hospital, a sciatic nerve which evidently had been the seat of a good deal of inflammation. He could not help thinking that the proper way to treat such a case would be to cut down with antiseptic precautions and open the sheath of the nerve. He believed that if we could be positive that the nerve is in that condition, that would

be *the* method which would give the best results. This would be only following out the old-fashioned practice, obtained from the Chinese, of puncturing the sheath of the nerve with gold needles. He did not believe that the rubbing of ointments on the skin, separated from the nerve by thick layers of muscles, could influence the inflammatory action. He was sceptical in regard to all such remedies.

DR. F. X. DERCUM said that there was one practical point of importance in regard to the use of the actual cautery: that is, that the burn should be superficial, not deep. We want to impress the nerve-endings, not to make holes, and to heal up the burns as rapidly as possible. After applying the hot iron dress the burn antiseptically and allow it to heal. It is, he thinks, the *repeated* burnings that accomplish the good. His ordinary method in the treatment of sciatica is first to use the salicylates. If ordinary doses do not give a good result, then to give as large a dose as the patient can bear. The suggestion of Dr. Lloyd in regard to opening the sheath, he considered to be a valuable one. If there is inflammation, incision of the sheath would allow the effusion to escape. Even if it did not accomplish good in this way, it might so alter the nutrition of the nerve that benefit would ensue.

DR. S. WEIR MITCHELL desired to make a few remarks upon this disease, which is so often quite easy to treat, and, again, so excessively difficult. It has a host of remedies. It had been his own fortune to see in hospital practice an enormous number of cases of sciatica, and he really thought he had done something toward improving the methods of treatment in old and obstinate cases. It is probable that a large number of slighter cases are of rheumatic origin, but when this condition endures for a long time, or there is a primary traumatic cause, it is pretty sure to end in inflammation of the sheath, or of the nerve track, or of both, with more or less effusion within the sheath. Much of this opinion may seem to be mere guess-work, for the opportunities of seeing the living nerve are rare. He had, however, in two cases during the war, seen the nerve cut down upon for the relief of serious traumatic neuralgia. In both there was a considerable amount of serum within the nerve sheath. In one, as he remembered, the nerve itself was distinctly swollen and inflamed. In both these instances four or more inches of nerve were exposed, and in both cases the results of the operation were excellent.

In speaking of this matter of the treatment of sciatica, he desired to say that if the case has lasted long, or has not, and is serious or slight, of course he need hardly refer to the need of the most careful attention to the constitutional condition of the patient; nor need he go into the consideration of the anæmic, scorbutic, or gouty states, which require and reward prompt treatment by internal remedies. He might say, however, that if these matters having been duty considered, in ordinary instances of sciatica, massage alone is often competent to do the rest. What Dr. Taylor had said in this connection is of interest. This mode of treating by massage is what the French call *effleurage*, and not deep kneading. A roller of glass would be a good instrument for making this form of impression on the nerves. It is simple, and anybody could be taught to use it.

In more severe cases the cautery is his favorite remedy. He was perfectly at one with Dr. Dercum in reference to the manner of using it. It should be used so as not to destroy the skin, which ought to be touched lightly three or four times in places along the track of the nerve. This may be repeated every three or four days until a cure is effected. Such burns scarcely require any dressing. In children, or in nervous people, the previous application of ice, or of ice and salt, will prevent any immediate pain. But as regards this and all local means of treating this disorder he felt quite sure that they are most successful when the patient is kept at rest in bed.

As to nerve-stretching, he had had it done for sciatica three times, and he had seen three cases in which it had been done, so that his whole experience rests upon six cases. He thought he had never seen a case cured by this means. He did not say that it did not relieve for a time, for it did. But he might also add that in the last few years he had seen cases of this disease treated by nerve-stretching with failure of relief, and had afterward seen them cured by means which might have been used first. Strong extension of the muscles, such as involves more or less stretching of the nerves, he thought was of great value in certain spastic spinal affections. But he had never had any luck with this treatment of sciatica.

He would like again and again to repeat that in severe cases rest is an imperative need. By this he did not mean merely remaining in bed, but the use of methods which may or may not be altogether his own (that is a matter of indifference), but which he had never seen elsewhere described, and which are now often used in the Infirmary by himself and his colleagues. These consist in placing the patient who has this neuralgia in bed and putting on him an old-fashioned thigh-fracture splint, insisting upon its being worn night and day, so that it is impossible for him to bend his leg. The result of this absolute rest is, in many cases, quite remarkable. Nor does this means forbid the use of other agencies, notably the cautery, or low temperature, or of other measures which may be allowable.

Another measure which he did not know to have been used by any one than himself is the *persistent* application of ice along the nerve track. This consists in applying ice-bags along the whole track of the main nerve *in connection with the splint;* that is to say, these bags are applied from the sciatic notch to below the knee. They are kept on day and night. In one case they were used as long as three weeks, with triumphant results.

He had made some investigations in regard to the temperature obtained by these applications, and at a later date he would make a report on this, considering it to be a subject worthy of further investigation. He had used bags filled with ice, and had had ice-water circulating through the bag. He had found that, by the use of different saline solutions with ice, it was possible to secure certain definite temperatures in the skin under the bags.

DR. WHARTON SINKLER desired to call attention to one method which had not been spoken of. That is the method of acupuncture by the German apparatus called Baumscheidtmus, consisting of a number of needles which are driven into the skin in the course of the nerve and some counter-irritant oil rubbed in. He had cured one case of most obstinate and violent sciatica by this means, and the patient remained well for a number of years. In this case, however, it is possible that the result was influenced by the sloughing which occurred at the point of

puncture. In another case, in which sloughing did not occur, a cure was also effected.

Dr. S. Solis-Cohen was aware that one case does not establish a general rule, and on that account simply reported this case without comment. Osmic acid, however, is not an untried remedy. There are very many cases of its use on record, principally during the last five or six years. He had used it in some twelve or fifteen cases, but only two were in private practice, and the notes in regard to the others are not at present accessible. His impression is that the result was satisfactory in about one-half of the cases. The German physician who first investigated this method reported upward of forty or fifty cases, and found that the results were best in the oldest cases. It was useless in the acute cases. Some experiments on animals were reported, showing that a definite alteration in the nerve cells, similar to that observed in histological preparations treated with the same agent, followed the injection of the remedy. It is probable that conduction is interfered with. He did not know how else we can explain the good result. He agreed with the speakers who consider internal remedies, except where there is a constitutional or diathetic fault, as useless, except for palliation. Where the sciatica depends upon gout, or rheumatism, or anæmia, of course, salicylates, iron, arsenic, etc., as indicated, will often effect a cure, or greatly assist recovery. The value of iron specially needs emphasis, not only in anæmic but certain rheumatic conditions. Among remedies not mentioned, he had seen good results from the deep injection of chloroform. He had also occasionally seen temporary good results from the deep injection of atropine and morphine, in cases where the injection of morphine alone was without curative effect. The long list of agents and methods, each of which has been useful in some instances, shows there is no single treatment; but he believed that osmic acid, deeply injected near the seat of greatest pain, is among the remedies eminently worthy of consideration in unyielding cases such as that reported.

Dr. J. Madison Taylor said that there is an anatomical point which he did not see credited with the influence which it deserves in determining the frequent occurrence of neuritis of the great sciatic near its exit from the notch. The nerve is very exposed just here, and it suffers direct compression by the action of several powerful muscles which run directly transverse to its course. The pyriformis alone acts as almost a constricting band in front, opposed by the obturator interni and Gemelli beneath. In whatsoever attitude the body assumes when any of these muscles are put in tension, there is strong compression exerted on these tender fibres. Hence, when inflammatory action occurs in the nerve or its sheath, it is brought to a focus here, the circulation is interfered with, and the smallest muscular movements cause pain and irritation. It is seldom granted us to see this organ in its earlier subacute or chronic condition of engorgement and thickening, but it is pretty certain we should find a red, swollen organ, with a jelly-like or serofibrinous exudate, crowding the sheath space, with here and there bloody extravasations. Now, next to the actual removal of this diseased section, as suggested by Dr. Lloyd, but not likely to be yet generally adopted, to his mind, comes the gentle systematic compressing action by such means as he had suggested, which aids in breaking up old adhesions, and emptying out the engorged sheath, and such other results as aid a reëstablishing of the normal elasticity of the parts. This massage does, but no hand can beat the power which this simple agent possesses, nor does the percutor of Mr. Mortimer Granville, so excellent in its results, do it any better, and not nearly so cheaply.

Dr. J. Chalmers Da Costa reported

FOUR CASES OF COCAINE DELIRIUM,

two of which occurred in his office practice, and two were observed in the surgical out-patient department of the Jefferson College Hospital, and the latter he is enabled to report by the courtesy of Dr. Horwitz, the department chief.

Case I. — Man, twenty-five years of age, of nervous temperament, and addicted to the excessive use of alcohol. He had a stricture of the urethra, and had been for some time under treatment, but as the passage of instruments occasioned considerable pain, it was determined that cocaine should be employed.

He was handed a syringe containing ♏ xxx of a four per cent. solution, and told to throw it into the urethra. In a moment, on turning, he discovered him still seated on the edge of the sofa, one hand grasping the penis, the other the syringe, but pale and immobile as a statue; he spoke to him, but he made no answer, and when he touched him he fell over. He did not seem to breathe; the pulse at the wrist was imperceptible, the pupils were widely dilated, the lips were pale, the face pallid and bathed with sweat; there were muscular resolution and complete unconsciousness. In about fifteen seconds breathing began, and the pulse reappeared. The pulse beat fifty to the minute, was small, and of high tension. The respirations were shallow and slow. The pupils were moderately dilated, and did not respond to light. Muscular resolution and unconsciousness were complete. Conjunctival reflex was abolished. The extremities were icy-cold. There was entire insensibility to pain. The body was drenched with sweat. After several minutes, the face showed signs of venous congestion, the facial muscles twitched convulsively, the arms and legs were worked in a violent and irregular manner, and the patient tossed about on the sofa. The conjunctival reflex returned, but there was still analgesia. He soon began to talk incoherently, to laugh, shout, and sing, put paid no attention to words, or to being roughly shaken, and seemed entirely oblivious to his surroundings. He obviously had hallucinations of sight and hearing of an agreeable nature. The pulse was now rapid, weak, and irregular. The respiration shallow, frequent, and jerking.

This delirium gradually passed away; he would answer when spoken to, but could not maintain a thread of conversation, and when left to himself was concentrated on his own ideas, which flowed in a torrent, now grave, now gay, now majestic, now amusing. This condition was one of intellectual brilliancy. He quoted poetry, oratory, and philosophy (being a particularly well educated man, and a writer himself of some attainments). He gave portions of "Locksley Hall," with excellent effect, and wept as he recited Keats's "Ode to a Nightingale." When told that he had fainted while grasping his penis, and asked what would have been said by his friends had he died in that attitude, he responded, "The ruling passion is strong in death." He said he felt "gloriously

happy," and that "a drowsy numbness filled his veins." Gradually he became quiet, and about one hour after the onset of the symptoms passed into an apparently natural sleep from which he awoke in two hours, feeling languid and somewhat giddy; complaining of headache and numbness of the extremities, dryness of the mouth, dimness of vision, and an intense desire to make water.

He remembered having begun to take the injection, but could recollect nothing more until he had reached the stage which he denominated a "poet's dream." In this stage, he says, his happiness was complete; he felt no care, took no note of time, experienced no surprise as to his situation, and was occupied with poetic thoughts, dressed in splendid imagery.

He states that this mental condition was apparently identical with that occasioned in him by large experimental doses of hashish.

This gentleman, being of an experimental turn of mind, repeated the injection one night, with the result of alarming his family to a terrible extent. The family physician, who was sent for, expressed a strong and angry suspicion that alcohol was the whole trouble. The after-effects of this dose were decidedly unpleasant, and lasted many hours; being chiefly great prostration, numbness of the extremities, dry mouth, and dimness of vision.

Case II.—Man, twenty years of age, brother of the preceding, of similar habits and temperament. Had been for some time under my care for urethral stricture. On his solicitation, ♏ xv of a three per cent. solution of cocaine were injected into the urethra. Several bougies were passed without giving any pain. Some five minutes after the injection it was observed that his attention was withdrawn from the operation, and that he gave no answer when spoken to. The face was pale and covered with sweat, the pupils were moderately dilated, the pulse slow and of high tension, the respirations rapid, jerking, and irregular. Conjunctival reflex was not abolished, and on testing it he began to roll around, to toss his extremities, to shout and swear. He cried out that he could not breathe; he had hallucinations of sight, brushing bugs off of his coat; and illusions of personality, thinking I was his brother.

He arose from the couch, staggered like a drunken man, and incoördinately adjusted his garments. His face was now flushed, and his pupils of normal size. He staggered about the office, upset chairs, aimed blows at me, and, with indistinct articulation, declared that I wanted to kill him. He insisted on going out, was with great difficulty got into a carriage, taken home, and put to bed, where he finally went to sleep, under sodii brom. and morphia. He awoke in the morning feeling as if he had been "on a tear," and dimly remembering that he had abused me violently, for which he was very penitent. He remembered coming to my office, but had no memory of taking the injection, or of being operated upon.

Case III.—Man, twenty-two years of age. Also a drinker. Came to the hospital to be operated upon for phimosis. 10 ♏ of a four per cent. solution of cocaine were thrown into the prepuce by means of a hypodermatic syringe. The operation was not entirely painless. About fifteen minutes after the injection he became very pale, and tetanically rigid, like a person in the first stage of an epileptic fit. The pupils were dilated, face was pale and covered with sweat, extremities cold, and he was unconscious. After a few seconds he tossed his arms, body, legs, and head, in a manner suggestive of the progressive movements of hystero-epilepsy. The pulse was rapid (120), weak, and irregular. The respirations shallow and rapid. The reflexes were dulled, but not abolished. Sensibility was diminished, but not destroyed. He talked rapidly, inarticulately, and incoherently, prayed, swore, threatened, and tried to get up. In about twenty minutes he became quiet, was put to bed in the wards, and after some hours went home. Next day felt all right.

Case IV.—Man, thirty years of age. Nervous temperament. Habits unknown. Came to the hospital for urethral stricture. Passage of instruments was productive of so much pain that 20 ♏ of a six per cent. solution of cocaine were injected into the urethra. In a few minutes he began to mutter, and to move his right hand as if sending a telegram (he was a telegraph operator). He began to talk about the message, saying it must be sent, and telegraphed with tremendous energy. His face was pale and moist, pupils of normal size and reacted to light, conjunctival and plantar reflexes present. Did not answer when spoken to, and did not feel a pin point. Respirations were rapid and shallow. Pulse was slow, and of considerable tension. This condition existed for some ten minutes, when he became conscious, and asked what was the matter. He complained of dyspnœa, and had no memory of events after the passage of the first bougie. Next morning he stated that he felt dull and heavy for a number of hours after going home, that he found great difficulty in picking up small objects (pens, pencils, etc.), and that his fingers seemed numb, and could scarcely feel objects or grasp them.

Some physicians who have seen cases similar to these have stated their belief that the symptoms were purely the result of fright; but only one of these cases showed any apprehension.

It might be considered possible that such phenomena could ensue from a condition of reflex irritation, similar to the so-called pleuritic epilepsies which occasionally result from injecting the pleural cavity with iodine or some other agent. It seems improbable, however, that this was the condition here, as previous instrumentation on three of the cases induced no reflex disturbances and a repetition of the injection in one reproduced the symptoms.

He asked if the high arterial tension, the small and usually slow pulse, the pallor, the dilated pupils, and the unconsciousness are not evidences of cerebral anæmia from vaso-motor spasm. An interesting fact of this series of cases is the exhibition of a family idiosyncrasy by the occurrence of toxic symptoms in two brothers.

He inquired if the nervous temperament and the abuse of alcohol did not render the organism particularly susceptible to the action of cocaine, and if any signs exist which would indicate to us that cocaine would be dangerous in a given case.

DR. FRANCIS X. DERCUM had repeatedly given cocaine in half-grain doses by subcutaneous injection without noticing any serious symptoms. This report is exceedingly interesting, and it is a question in his mind whether or not the locality in which the cocaine was applied had anything to do with the symptoms. The urethra is very sensitive and is intimately associated with the spinal centres. We must take this into consideration. It seemed to him that the case could hardly be considered proved unless a cross experiment was made by injecting a similar

dose of cocaine into the subcutaneous tissues of the patients whose interesting symptoms had just been detailed.

Dr. Mitchell thought that the point in regard to the location of the injection was well taken. He knew by personal experience that different methods of taking a drug produce very different effects. When he himself takes morphia by the stomach, it produces horrible vomiting and headache, but when taken hypodermatically no inconvenience is produced; but this is common knowledge. What has been here told as to the occasional effects or the apparent effects of cocaine, when used by the urethra, should lead to some examination into the matter, since it is possible that there may be peculiarities due, in certain constitutions, to local impressions made on that sensitive tube by drugs.

Dr. Lloyd asked what is the proper dose of cocaine. He was using in one case two grains daily in divided doses, so far without any apparent effect.

Dr. E. N. Brush had had more or less experience with the injection of cocaine when it was first suggested for the treatment of certain forms of melancholia with stupor. He employed it in doses of from one-half to one grain. The effect was to induce laughter in some, and a talkative state; it was only temporary and no serious symptoms were produced.

Personal experience had taught him that the effect of this drug on certain persons, even in good general health, is to render them more talkative. Last fall he used a four per cent. solution as a spray for a throat trouble, continuing the application but a few minutes. A talkative state was produced and in twenty minutes there was severe headache. He repeated the experiment on other occasions with the same result. He had had under his care a physician who, when he came to the hospital, was taking ten grains of cocaine daily. He had taken as much as thirty grains; Dr. Brush cut him down to two grains, then to one grain and then stopped it altogether. There was no disturbance. He had had in all under his care three physicians who were addicted to the use of cocaine. Two used it hypodermatically and one by the mouth. The latter took forty grains a day, according to his own statement.

Dr. J. Chalmers DaCosta said that in hastily looking over the literature he found a very wide range of variation in reference to the dosage of cocaine. Martindale states in his book on coca and cocaine, that one man took without obvious ill-effect twenty-three grains. Another took, with suicidal intent, thirty-two grains, the result being considerable prostration. Dr. Dien, of Dantzic, an ophthalmologist, injected one-tenth of a grain under the conjunctiva and produced very alarming symptoms. The dangerous dose therefore seems to be somewhere between the wide extremes of one-tenth of a grain and thirty-two grains, but exactly where it is hard to tell.

CORRESPONDENCE.

THE MEDICAL EXAMINERS' BILL.

To the Editor of The Medical News.

Sir: It would seem that the present position of the discussion over the Medical Examiners' Bill, which has unavoidably been conducted chiefly in the newspapers, calls for a word of comment in the columns of the medical press. Doubtless the arguments which led to the decision that such a bill should be introduced were cogent and convincing. Probably a large proportion of the profession approved of the general principle which underlies all such bills, but were not acquainted with the details of this particular measure. It has, however, been subjected to critical examination, during the active discussion which has sprung up over it, and the impression seems well founded that, with a slight amendment, which would make more conspicuous the good faith and intent of the bill, it was as good as any such bill could be for its purpose. This purpose was, of course, the elevation of the standard of medical education, and the improvement of the grade of medical practitioners in this State.

The notion of securing these important gains by legislative enactment is so familiar to the public and to the profession in other countries, that it might well seem strange that the evils of unlimited free trade in the production of physicians should so long have been tolerated in the United States. The improvement effected by the competition of excessively numerous schools of all kinds and grades may never be general or adequate. It is, indeed, doubtful whether the original Examiners' Bill would have been sufficient. Examinations do not educate, and there are ways of cramming for them which prevent them from being adequate tests of education. Of course, they are far better than nothing. But it is the contention of the vast majority of the community and of physicians, that the amendments incorporated in the bill would reduce the value of these provisions to a serious degree. A manly protest against these amendments was made without effect. It was made by a group of individuals who represented no medical school officially, but who personally represented all of the regular medical schools in Philadelphia. When, however, it became evident that the bill would either be defeated on final reading in the House, or would go to the Senate in an unsatisfactory shape, it was resolved by a number of these individuals after prolonged conference to urge an additional amendment in the Senate, which would again render the bill a sure means of elevating the profession, and of protecting the public.

It may seem even presumptuous to start an agitation which aims at nothing less than the establishment of compulsory four-year teaching on the part of all medical schools in this State, and of all which educate students intending to practise in this State.

But those who are in closest touch with the profession feel most strongly the rapidly growing sentiment in favor of prolonged and thoroughly practical instruction. Experience in actually conducting a three years' graded course in a large city, such as Pittsburg or Philadelphia, will convince anyone, it is believed, that the student is as inevitably overtaxed in the effort to acquire a real education in three years as he formerly was in the effort to secure superficial instruction in two years. As soon as you enter on the task of providing for each student full laboratory and hospital work in medicine, surgery, obstetrics, and the leading specialties, it is manifest that the requisite number of hours cannot be had in a three years' roster, save by overburdening the student, so that it is impossible for him to assimilate the wealth of instruction provided. Only too often his health also suffers

in the strain. Now that medical teaching is coming to be regarded from the highest standpoint, and when new and important branches, as medical jurisprudence and hygiene, demand full recognition, it is inevitable that four years' study—the lowest term allowed by any European country—must soon become the rule here also. Certainly scholarships must be founded in the interest of deserving students without sufficient means to meet the heavier expense of prolonged study. But the moment that such a course of study becomes obligatory, there will be munificent provisions for such scholarships in medicine, just as is seen in other branches of study. The overcrowding of the profession would be lessened, and the students would find such an education a practical guarantee of subsequent success.

Certainly the profits of the professors in medical schools would be reduced when this reform is effected, for although the total of fees might be larger, the heavy working expenses would cut down the net profit. But it may be hoped that the direct and indirect advantages of such positions would still attract to the practical chairs the strongest men, while the claims of the non-practical chairs for endowment would soon be answered by our communities which are showing themselves so ready to supply the actual needs of sound education.

It is believed then by those who advocate this amendment, that it would be easy so to fix the date when the full provisions of the bill should become effective as to avoid any interference with vested interests; that there is not a medical school in this State which could not establish such a four-year course with success under the operation of the proposed law; and that the true interests of the public and of the profession would be promoted by its enactment.

It is in this spirit the amendment will be proposed. It is hoped the profession throughout the State will support it.

Yours respectfully,

WILLIAM PEPPER,
D. HAYES AGNEW,
J. WILLIAM WHITE,
H. C. WOOD,
W. W. KEEN,
CHARLES K. MILLS,
THOMAS B. REED,
JOHN B. ROBERTS,
THOMAS J. MAYS,
PETER D. KEYSER,
JAMES TYSON,
LAURENCE F. FLICK.

PHILADELPHIA, April 3, 1889

TREPHINING THE SKULL AND TAPPING THE VENTRICLES.

To the Editor of THE MEDICAL NEWS,

SIR: I have just seen in THE MEDICAL NEWS of March 9th, under the proceedings of the Philadelphia County Medical Society, a preliminary report by Dr. W. W. Keen of a case of tapping and irrigation of the ventricles.

Since Dr. Keen believes the operation in this case was the first of the kind ever performed, I may be permitted to mention that one month previous to his operation, I performed almost the exact one, viz., that of trephining and tapping the lateral ventricle. This was on the 4th of December, 1888.

The patient was presented after operation, and the details reported to the Allegheny County Medical Society on the 19th of February last, and are published in full in the *Pittsburg Medical Review* for the current month, March. Hence, as far as pertains to Dr. Keen, I may be excused for laying claim to priority in the operation.

But I am not prepared to claim universal priority, though unable to find any previous account of the exact operation. It is, of course, well known that the lateral ventricles have been frequently tapped for hydrocephalic fluid, but so far as I could ascertain, this had always been done through the *unclosed* sutures.

I regret that I have not seen the general rules for this operation formulated by Dr. Keen, to which he refers in the above report; and, furthermore, that in casting about for similar operations to my own, at the time of preparing my paper, I omitted reference to one quite analogous by this same surgeon to which my attention was first called in an editorial on "Deeper Brain Surgery," in the *Journal of the American Medical Association* of December 8, 1888.

Respectfully yours,

SAMUEL AYRES.

PITTSBURG, PA., March 23, 1889.

POISONOUS EFFECTS OF COCAINE.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue of March 9th is an extract from the *British Medical Journal* relating to the poisonous effects of cocaine, in which opium, chloral, ether, and chloroform are spoken of as the best remedies to relieve the poisonous symptoms.

I have often seen, as the result of its use on mucous membranes, pallor, giddiness, nausea, vomiting, with rapidity and weakness of the pulse, dyspnœa, or rather a sense of choking, and sometimes profuse sweating. Frequently headache has supervened, and occasionally pain in the region of the heart. In two or three cases fainting has occurred. Usually these symptoms subside of themselves within half an hour or an hour, but sometimes a part of them may continue many hours. I have seen the headache, which would otherwise have lasted several hours, promptly relieved by fifteen grains of bromide of potassium; but for the giddiness, or actual fainting, I think nothing answers so well as alcoholic stimulation.

For example: A patient, on whom grs. jss cocaine hydrochlorate, in ten per cent. solution, had been used on the Schneiderian mucous membrane, became so faint that he could not sit up, complained of pain about the heart, and passed quickly into a semi-conscious condition. Two drachms of alcohol, diluted with water, were administered by the stomach. Nearly all of the symptoms disappeared within fifteen minutes.

Second. A patient, whose nasal cavity was being anæsthetized, became giddy and soon fainted, when only about one-third the amount necessary to produce anæsthesia had been used. Two drachms of alcohol in water promptly relieved the symptoms. The application o cocaine was then renewed, and the anæsthesia and subsequent operation were completed without further inconvenience.

I think that some of the symptoms attributed to the poisonous influence of cocaine are largely due to fright, but I feel confident that the results of poisoning are better relieved by alcoholics than by other remedies.

I have seen alarming symptoms follow the application of half a grain of cocaine, in solution, to the nasal mucous membrane, but have seen other patients who experienced no inconvenience from the use of five grains in this way. However, one to one and a half grains should not be exceeded when it is possible to obtain anæsthesia with less.

E. Fletcher Ingals.

Chicago, March 22, 1889.

AUTOMATIC AMBULATION.

To the Editor of The Medical News.

Sir: The very interesting case described by Dr. Donaldson under the title "Automatic Ambulation," which he had seen in the clinic of Charcot, is not without a parallel, as the doctor supposes. The condition of the patient, in which, though seemingly rational, he was really suffering from a lapse of consciousness, is one which has been described by several writers upon epilepsy, notably Hughlings Jackson and Gowers. Formerly it was asserted that such a state of double consciousness was always a post-epileptic phenomenon. Now it is believed that it may occur as the psychical equivalent of the epileptic attack.

An interesting case, which illustrates this condition, was observed at my clinic not very long ago. A young man, a carpenter by trade, who had occasionally suffered from epileptic attacks, related the following history: He remembered having come home as usual from work on a Thursday night, and having gone to bed with his brother, with whom he always slept. The next thing which he remembers, is awaking on Friday afternoon at four o'clock, and finding himself in Bellevue Hospital. He had no recollection whatever of how he got there, and it was a surprise to him not to find himself in his own room. He learned, however, subsequently, that he had gotten up, apparently as usual, on Friday morning, after a quiet night, his brother being positive that he could not have had an epileptic attack during the night, and his family having noticed nothing unusual in his appearance or manner. He had gone to his work as usual, and had been sent by the foreman upon an errand, involving a walk of sixteen blocks, which errand he had partly carried out, as he had delivered the package at the required place. His next trace of himself is in a distant part of the city, in the shop of a plumber, with whom, it seems, he had picked a quarrel, and who turned him over to a policeman, who in turn took him to the station-house, whence he was sent to Bellevue Hospital. The police justice sent him to the hospital because he appeared to be bewildered, but not drunk, as he answered questions intelligibly, and could walk perfectly, and yet did not seem well. When he reached the hospital he was put to bed, and soon fell asleep. When the physician came to examine him soon after, he was awakened, and then was in his natural condition, and, appearing to be well, he was discharged, and came home.

There appeared to be no evidence that the boy had had a fit; his tongue was not bitten, he was not fatigued as he had been after other attacks. He was very intelligent, and took an interest in his condition, finding out the facts which have been related. There had, undoubtedly, been a total "lapse of consciousness" from Thursday night until Friday afternoon, yet during this period he had acted as if conscious, and had found his way as usual to his place of work. It seems preferable to speak of such a state as one of double consciousness, rather than as one of lapse of consciousness, though there is certainly a lapse of memory. He has had no subsequent attack to my knowledge, having been treated with bromides as for epilepsy.

A somewhat similar case has recently come under my observation in consultation, but various circumstances subsequently discovered by the attending physician led us both to decide that it was a case of malingering. I have no doubt that others have seen similar cases, though I cannot but believe that they are very rare.

Yours respectfully,

M. Allen Starr.

22 West Forty-eighth Street, New York.

NEWS ITEMS.

Convention for Revising the Pharmacopœia.—Dr. Robert Amory, President of the Convention of 1880, calls upon the several incorporated medical societies, incorporated medical colleges, incorporated colleges of pharmacy, and incorporated pharmaceutical societies throughout the United States of America, The American Medical Association, and The American Pharmaceutical Association, to elect a number of delegates, not exceeding *three*, and upon the Surgeon-General of the Army, Surgeon-General of the Navy, and the Surgeon-General of the Marine-Hospital Service to appoint, each, not exceeding *three* medical officers, to attend a General Convention for the Revision and Publication of the Pharmacopœia, to assemble in Washington, on Wednesday, May 7, 1890, at noon.

The several bodies, as well as the Medical Departments of the Army, Navy, and Marine-Hospital Service, are requested to submit the Pharmacopœia to a careful revision, and to transmit the result of their labors to the Committee of Revision at least three months before the meeting of the General Convention.

The several medical and pharmaceutical bodies are requested to transmit to the President of the Convention of 1880, the names and residences of their respective delegates, as soon as they shall have been appointed; a list of these delegates will be published for the information of the medical public, in the newspapers and medical journals in the month of March, 1890.

If any body other than those admitted in 1880 shall desire a representation in the Convention of 1890, it is suggested that the proof of incorporation, signed by the Secretary of State, of the State which shall have issued the charter, or by properly qualified public officials of the United States, be presented with the credentials of the delegation.

A blank form of certificate of appointment of delegates will be sent upon application by letter to Dr. Robert Amory, care of Dr. Edwin H. Brigham, 19 Boyleston Place, Boston, Mass.

The Philadelphia Polyclinic Course.—Dr. Thomas J. Mays will deliver his third lecture on "Pulmonary Consumption a Neurosis," on Friday evening, April 12, 1889, at

eight o'clock, in the College building of the Philadelphia Polyclinic, Broad and Lombard Streets. The profession is cordially invited.

Medical Journalism—a Protest.—The following communication, signed by several leading members of the profession, addressed to the Presidents of the Branches of the British Medical Association, has been drawn up with the view of eliciting an expression of opinion from the members of the Association:

"It is universally admitted that the *British Medical Journal* is at present ably edited, and that, while it is a great financial success, it is a repertorium of a vast amount of valuable scientific information.

"At the same time, it is believed by many members of the profession that the best interests and the honor of the Association would be greatly promoted by a change in the character of the *Journal*.

"An opinion has for several years been wisely held that the lines on which the *Journal* is now conducted, which are similar to those of proprietary journals, with anonymous articles and reviews and multifarious advertisements, are not suitable for the organ of our Association, for the sayings and doings of which our members individually are responsible.

"It is felt that the *Journal* should be a faithful exponent of the proceedings of the Association in all its departments, while presenting a record of contemporary professional work elsewhere; but that anything beyond this, whether articles, reviews, or annotations, should have the authors' signatures appended, as indicating the actual authority of the communications. The character of the advertisements also should be more carefully controlled than at present, and especially all announcements of secret remedies should be excluded.

"It may be objected that such a change in the *Journal* would involve some pecuniary loss. But our members are now so numerous that the annual subscriptions, together with income from other sources, would cover all current expenses. And it may be remarked, that our individual self-respect is a matter of higher moment than flourishing finances.

"It is proposed, in the first instance, to address the Council of the Association, requesting them to consider this important subject, and, should it be deemed necessary, to summon a special general meeting in London. But, before taking such a step, it seems essential that there should be some guarantee that the proposed reform would be favorably regarded throughout the country. And we venture to ask that you will ascertain, as soon as may be, the feeling of your Branch upon the subject, and communicate the result to the Honorary Secretaries."—*Medical Press*, Feb. 20, 1889.

Six Laparotomies Performed upon One Patient.—The *Gazetta Medica di Torino* records the case of a woman, æt. fifty, who had submitted to laparotomy upon six different occasions at the hands of Professor Franzolini. The operations were performed between June, 1879, and April, 1887. The first was in consequence of fibro-cystic disease of the uterus. A triumph of surgery such as this, we may well believe, is without precedent, and the most satisfactory part of the case is that the patient has, since the last operation, been in the enjoyment of good health. So does she deserve her reward!—*Medical Press*, March 13, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 19 TO APRIL 1, 1889.

By direction of the Secretary of War, the leave of absence granted RICHARD C. NEWTON, *Captain and Assistant Surgeon*, in S. O. 272, November 21, 1888, is extended to include May 22, 1889.—Par. 17, *S. O. 64, A. G. O., Washington*, March 19, 1889.

The resignation of RICHARD C. NEWTON, *Captain and Assistant Surgeon*, has been accepted by the President, to take effect May 22, 1889.—Par. 18, *S. O. 64, A. G. O., Washington*, March 19, 1889.

Commanding Officer at Los Angeles, California, reports the death of R. H. ALEXANDER, *Lieutenant-Colonel and Surgeon* (U. S. Army) at 11.50 this morning, March 29, 1889. (Telegram.)

BARNETT, RICHARDS, *Assistant Surgeon* (U. S. Army).—Died, March 31, 1889, at Fort Riley, Kansas.

MAUS, LOUIS M., *Captain and Assistant Surgeon* (Fort Schuyler, New York Harbor).—Will proceed to Camp S. B. Luce, Fisher's Island, New York, with Battery "K," Fifth United States Artillery, and report to the camp commander for a tour of rifle practice.—Par. 10, *S. O. 158, Headquarters Division of the Atlantic, Governor's Island, New York City.*

BALL, R. B., *Assistant Surgeon.*—Ordered to Fort Riley, Kansas, for duty.—*S. O. 36, Headquarters Department of the Missouri.*

JOHNSON, R. W., *Assistant Surgeon.*—Reports departure for Whipple Barracks, Arizona Territory, March 25, 1889.

Atlanta Barracks, Georgia, established by *G. O. 28, A. G. O.*, March 21, 1889..

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING MARCH 30, 1889.

FARWELL, W. G., *Surgeon.*—Detached from the Receiving-ship "Franklin," April 1, and ordered to the Naval Hospital, Norfolk, Virginia.

MARMION, R. A., *Surgeon.*—Ordered to the Receiving-ship "Franklin."

FEREBEE, N. McP., *Surgeon.*—Detached from the Naval Hospital, Norfolk, Virginia, and placed on waiting orders.

BERRYHILL, THOMAS A., *Assistant Surgeon.*—Detached from the Naval Academy, Annapolis, Maryland, and ordered to the Naval Hospital, New York.

HEFFENGER, A. C, *Passed Assistant Surgeon.*—Ordered to appear before the Retiring Board, Washington, D. C.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FIVE WEEKS ENDING MARCH 30, 1889.

MAGRUDER, G. M., *Assistant Surgeon.*—To report to the Supervising Surgeon-General, in person, for temporary duty, March 1 and 23, 1889.

KINYOUN, J. J., *Assistant Surgeon.*—Relieved from duty at Baltimore, Maryland, to rejoin station at New York City, March 18, 1889.

PERRY, J. C., *Assistant Surgeon.*—Commissioned by the President, March 21, 1889. Ordered to the Marine Hospital, Mobile, Alabama, for temporary duty, March 22, 1889.

SMITH, A. C., *Assistant Surgeon.*—Commissioned by the President, March 21, 1889. Ordered to Marine Hospital, Louisville, Kentucky, March 22, 1889, for temporary duty.

BAILHACHE, P. H., *Surgeon.*—Relieved from duty at Philadelphia, Pa., to assume charge of the Service at San Francisco, California, March 28, 1889.

SAWTELLE, H. W., *Surgeon.*—When relieved at San Francisco, Cal., to assume charge of the Service at Portland, Me., March 28, 1889.

BANKS, C. E., *Passed Assistant Surgeon.*—When relieved at Portland, Me., to assume charge of the Service at Vineyard Haven, Mass., March 28, 1889.

AMES, R. P. M., *Passed Assistant Surgeon.*—When relieved at Vineyard Haven, Mass., to assume temporary charge of the Service at Philadelphia, Pa., March 28, 1889.

MAGRUDER, G. M., *Assistant Surgeon.*—When relieved at Louisville, Ky., to proceed to Memphis, Tenn., for temporary duty, March 28, 1889.

STONER, J. B, *Assistant Surgeon.*—To proceed to Pittsburg, Pa., for temporary duty, March 28, 1889.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ON PHAGOCYTES.

An Address
before the Alumni Association of Bellevue Hospital, New York, delivered April 3, 1889.

BY WILLIAM OSLER, M.D.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

THERE are in the body groups of tissues possessing cells, which either normally display amœboid changes, or are capable, under certain conditions, of assuming them. By amœboid properties we mean not only the capability of free movement, but the possession of a power which enables a cell to take foreign particles into its interior. Tissues containing such cells are derived from the mesoderm, the type of which, phylogenetically, is a free wandering cell. (Minot.) In the development of this layer epithelial and non-epithelial portions may be distinguished. For the former Minot has suggested the term mesothelium, and the latter His calls mesenchym. The distinction between the two is, however, largely artificial, as the epithelium may be, and in places is, in development changed into connective tissue. And, thirdly, there are in the mesoderm, at all stages of its development, certain cells which are free and independent—mesamœboids (Minot), and which persist subsequently as leucocytes.

These mesodermic cells in the adult body, which are capable either of free amœboid movements, or of taking up into their protoplasm solid particles of various sorts, are met with:

(1) As the colorless corpuscles of blood and mucus.

(2) The connective-tissue cells, free and fixed, within the connective tissue proper, or forming the supporting framework of the solid organs.

(3) Cells of the spleen, bone, marrow, and lymph glands.

(4) The vascular and lymphatic endothelium.

(5) The alveolar epithelium of the lungs.

All of these cells possess, in a greater or less degree, the power of taking solid particles into their interior, virtually, as we say, of eating them.

On account of the possession of this property, Metschnikoff has suggested for these groups of cells the term *phagocytes*, as expressive of their most distinctive feature, and for the process in general the term phagocytosis.

He regards this function as a property handed down from the primitive unicellular organism, and traces in an interesting manner the evolution of cells possessing it throughout the animal kingdom; attempting to show a genetic relation, physiologically at least, between the free living rhizopods and the cells of the middle germinal layer of the higher animals. Not a little of the attractiveness of Metschnikoff's views is derived from the glamor of evolution thrown over them by thus attributing the retention in certain cells of an atavic property in the highest degree useful to the organism.

I shall consider first the action of these phagocytes as normal physiological factors in the work of the body; and, secondly, take up the theory that these bodies play an essential *rôle* in the protection of the organism from the invasion of specific germs.

And, first, two illustrations from comparative physiology to indicate the important part assigned to phagocytes in certain transformations which animals undergo. In the development of the frog, the removal of the tail of the tadpole, and of the gills, by gradual atrophy, is effected, according to Metschnikoff, by the activity of the amœboid cells. At a time when the hind legs begin to bud, the leucocytes migrate into the tail, and by their phagocytic action remove the tissue, fragments of which, as muscle, bits of nerve fibres, etc., may be seen in the interior of their protoplasm. The gills are absorbed by an identical process. In the transformation of the larva into the fly, Kowalewsky[1] has shown that the large masses of muscle tissues, so abundant in the larva, and other parts unnecessary in the matured condition, are removed by the activity of the phagocytes.

It has long been known that foreign bodies, such as ligatures, portions of dead bone, and other substances, may be completely removed by leucocytes. Interesting as is this, and bearing directly upon the question, I propose to limit myself entirely to the consideration of the two aspects above referred to.

Nowhere in the body do we have such a facility for studying the action of phagocytes as in the organs of respiration, in which, with the cilia of the bronchial mucosa, they share in the work of cleansing the air-passages; and of these two important agencies it is hard to say which plays the more important part in the expulsion of those particles of foreign matter which, in cities at least, we constantly inhale. There are several groups of cells engaged in this work: The ordinary mucus corpuscles; the alveolar epithelium; the connective tissue elements of the pulmonary stroma, and the leucocytes of the lymph tissue in the bronchial, tracheal, mediastinal glands.

The mucus corpuscles, which in health are derived largely from the muciparous glands, and in inflammatory states from the general bronchial mucosa, are actively concerned in attacking the dust which reaches, in ordinary inspiration, as far at least as the medium-sized tubes.

The examination of the morning sputa of a cigarette-smoker, or of a person who has been exposed to a dusty atmosphere, shows very clearly that no small proportion of the carbon grains is included within protoplasm. The free granules are abundant, but almost every leucocyte has its little load which it has picked up on its road from the finer tubes to the trachea. I have always thought this represented a neat bit of economy of labor, as there

[1] Zeitschrift für wissenschaftliche Zoölogie, Bd. 45.

can be no question that it is easier for the cilia to sweep half a dozen angular particles, when enclosed in a cell, than to work at the same when free. In all probability, the finer particles which fall upon the tracheal or the bronchial membranes are gotten rid of almost entirely by cells and cilia. There does not appear to be, to any great extent, penetration of pigment granules between the ciliated epithelium. It is unusual to see beneath the tracheal mucosa any collection of carbon grains. We do meet with it in the submucous bronchial tissue, but the active vibratile lining seems to afford a tolerably sure protection. The lymph vessels open on the surface in the pseudo-stomata, and in the experimental work of Arnold[1] and others, leucocytes carrying black grains have been seen in the submucous lymph vessels; yet the process does not seem to go on to any great degree.

The particles which reach the air cells find no active current to sweep them from the spots on which they fall. It is possible to conceive, under certain conditions, of the air cells gradually filling, were it not for the activity of phagocytes, derived largely from the alveolar epithelium, which stands, as it were, at the gateway of the lymphatic circulation.

The cells lining the air cells, seen, for instance by scraping gently the cut surface of an œdematous lung, look as flattened, desiccated, and lifeless as do the scales of the scarf skin. But appearances are deceptive in this case, and the protoplasm of these cells is not only active but probably varies much in shape with the distention or contraction of the alveoli. When in contact with liquids and in pathological conditions, they change so much in form that I find it often a difficult lesson to teach students familiar with normal histology only, to recognize in the large, swollen ovoid cells so common in sputa, alveolar epithelium. Moreover, from the rapid way in which they may be desquamated, there must be ample provision for their rapid restitution. How far in a normal state these cells take part in the work of cleansing the lungs, is not yet definitely settled. In the young, they do not often appear in the sputa, except when there are indications of catarrhal changes, but, in the adult, their presence is very common. It is rare to see one in the sputa of a hospital patient, which has not brought with it a load of carbon, all of which may not have been derived from the air cells, as these bodies can undergo amœboid changes, and, like the leucocytes, are probably not above picking up a grain or two in their course toward the larynx. In cases of bronchial catarrh, and in phthisis, these pigmented cells of the alveoli may be very abundant, producing the blackish streaks which may be seen with the naked eye. When these cells have undergone the myelin degeneration they seem no longer capable of performing scavenger work.

In coal-miners, or even in stokers and coal-heavers, these pigment-laden cells may be extraordinarily abundant. It is not only when the patient comes direct from the mines, or from the coal-yards, but the old *poitrinaires* which haunt in such numbers our city hospitals, expectorate for months, or even longer, sputa containing the pigment-laden alveolar cells, staining the entire expectoration. So persistent may this be that the process may be regarded, not simply as an extrusion of the daily dole of carbon, but as a definite excretion, if we may so use the term, of particles which have been stored up in pulmonary parenchyma.

A certain proportion of the inhaled dust particles escapes the mucus cells and the alveolar epithelium and penetrates the substance of the lung, entering at the *kitt-substanz* between the cells, or through the pseudo-stomata existing in the alveolar wall. The particles of coal-dust have such sharp angles that we may suppose them capable of mechanically lacerating the delicate alveolar cells.

In dwellers in the country, as well as in wild animals, breathing an air comparatively pure, the cilia and the phagocytes in the air-passages appear quite able to prevent access of the carbon grains to the lung tissue; whereas in the dwellers in the cities, and in animals kept in confinement, the impurities in the air are so abundant that these agents are insufficient, and sooner or later the grains penetrate the air cells, aided, no doubt by the movements of inspiration and expiration; and we have the well-known marbled or carbonized organs which we see every day upon the post-mortem table.

When the particles reach the lymph spaces, the fixed and free connective tissue cells of the stroma join actively in the work. On section we see in the alveolar septa large numbers of round protoplasmic bodies, two or three times the size of colorless blood-corpuscles, which are usually packed full of dark grains. A certain proportion is seen within the ordinary connective tissue corpuscles, and, in addition, there are, in variable numbers, ordinary leucocytes. But even these forces are insufficient to meet the constantly advancing stream of dust particles. The destiny of those which escape the phagocytes in the alveolar stroma has been accurately followed in the investigations of Arnold and others.[1] Entering the lymph stream they are carried first into the lymph nodules, which, in the lungs surround the bronchi and bloodvessels, and a large number becomes fixed in the cells of the follicular cords or are permanently embedded in the stroma.

As they pass along the lymph channels into the interlobular septa beneath the pleura, a still further number lodge, and become permanently enclosed in the stroma cells, and, finally, the remnant pass into the larger lymph channels and ultimately lodge in the bronchial and tracheal glands. Here the lymph and stroma cells of the follicular cords dispose of them permanently. That this is effected in great part by the phagocytes is, I think, unquestioned. A scraping from any moderately pigmented lymph gland shows that the chief part of its carbon load is warehoused (so to speak) in protoplasm, the granules lie for the most part imbedded free in a connective tissue matrix. Here the struggle is practically over, and though not a victory, yet the compromise which has been made is the best which could possibly be effected. The sharp irritating particles have been placed in position in which they could do the least harm, and, though not expelled, have been safely imprisoned.

Once in the lymph glands of the bronchi, it is thought they never reach the general circulation, but it has been shown of late years, that under certain circumstances the carbon particles may pass the bronchial filters and spread far and wide throughout the system. Soyka's remark-

[1] Untersuchungen über Staubinhalation und Staubmetastase. Leipzig, 1885.

[1] Vide recent work of Fleiner. Virchow's Archiv, Bd. cxii.

able case in which undoubted coal particles were found in the tissue of the spleen and of the liver illustrates what really may occur. Weigert[1] in particular has called attention to the frequency with which in the spleen and in the liver carbonization of the connective tissue occurs. He states that it results whenever densely pigmented bronchial glands form close adhesion to the pulmonary veins, through the walls of which the carbon particles pass and so reach the general circulation. I would not call the condition common, but I have seen at least three instances at the Philadelphia Hospital in which the irregularly distributed pigment in the spleen and in the liver (in the latter chiefly along the portal canals) was undoubtedly of extraneous, not of hæmic origin.

The steps in this process described may be followed in the lungs of any town dweller, but to see in perfection the remarkable activity of the pulmonary phagocytes, one must study the early stages of anthracosis, particularly in those exceptional cases which we see occasionally when a miner has been killed by accident or dies of acute disease. It is not, I think, too much to say that the larger part of the pigment contained in lungs almost, if not quite, black, is enclosed in protoplasmic cells. Here too the invading particles are more formidable and not so readily dealt with; yet one frequently finds long irregular bits completely encircled by a film of protoplasm which the phagocyte has stretched to the utmost, just as we may see an amœba extend along the whole length of one of the short rod-like diatoms.

I know of nothing which illustrates better the remarkable amœboid properties of human protoplasm than a slide prepared from the scraping of such a lung, or of the black juice pressed therefrom. Scarcely a leucocyte can be seen which has not been at work, and many of the larger cells have the protoplasm stuffed to the full with carbon grains. Only in the work of the pond amœbæ preying amongst desmids, diatoms, and algæ can we see such better illustrations of active work. There is, of course, this difference, that the amœba eats to live, and so far as I know never loads its protoplasm with useless stuff. The body phagocytes take anything, never exercising selective powers. The particles which gain entrance to the lungs may be far too large for a single phagocyte to attack successfully. I have sketches showing rod-like particles, the ends of which appear enclosed in protoplasm of a dumb-bell shape; while in one instance not only were the ends enclosed, but the central portion was completely enveloped by the third leucocyte.

A physiological process in which phagocytes play a leading *rôle*, is the removal and digintegration of the red blood-corpuscles which have lived their life and are no longer fit for work. The cells containing the red blood-corpuscles, which are found in the bone marrow and in the spleen, however much opinion may differ as to their mode of origin, cannot, I think, be regarded in any other light than as phagocytic elements with this definite function. They exist normally in the red marrow, and in the spleen, and we may recognize (1) cells which appear to be, from their size and shape, elements of the pulp and (2) cells which belong to, or are derived from the endothelium of the capillaries, and (3) the cells of the stroma. The gradual production of the pigment in this way has been so often described, and is so well known that I need not now dwell upon it. In certain morbid conditions we see this process widely extended, and we find cells containing red blood-corpuscles in the liver, in the lymph-glands, even in the blood itself; and particularly is this the case in those states associated with rapid blood deterioration and destruction, as in acute fevers, when these bodies may be enormously increased. In certain forms of anæmia so abundant are they in the bone marrow and in the spleen that they have been regarded as directly concerned in the widespread hæmophthisis.

The observations of Quincke[1] and his pupils have shown that the liver is the chief seat of blood destruction in pernicious anæmia, but the totally different appearance presented by this organ, even in long-standing cases, to that met with in malaria, shows a radical difference in the nature, possibly in the seat of the hæmolytic action. In the former case, the pigment is chiefly in the liver cells; in the latter, in the stroma and about the blood-vessels. We cannot from this regard pernicious anæmia as an hepatic disorder. The liver, probably, makes the best disposal it can of an abnormally large amount of coloring matter, which is, I should suppose, not brought to it in the same form as in malaria, but rather in a form similar to the raw material of the bile pigment, which would account for the active participation of the liver cells. The deep beefy-red color of the muscles in pernicious anæmia also tells of an abnormally large quantity of coloring matter at the disposal of the tissues.

In chronic emphysema, in mitral obstruction, and in all affections in which the circulation within the lungs is permanently embarrassed, the condition of brown induration which ensues affords a very beautiful illustration of the same process. The blood corpuscles by diapedesis reach the stroma of the air cells, where they are seized upon, just as are coal particles, by the connective-tissue cells, and are gradually converted into a pigment which retains for a long time its brownish tint, but which may ultimately become black.

Neumann, in a recent paper,[2] doubts whether the brown induration of the lungs is really the result of the ingestion of the red blood-corpuscles by the stroma cells. He holds that in many instances, at least, structures within the corpuscles, which resemble so closely the red blood-disks, are in reality only pigment forms having the size and color of the red blood-cells. We certainly see structures within the cells which cannot possibly be mistaken for anything but red blood-corpuscles, and, I think, the expert eye can usually discriminate between such and the round aggregations of pigment, however deceptive may be their form and color.

Phagocytosis has been studied in the process associated with absorption of extravasated blood. Langhans was the first to show that blood effused into the tissue did not simply disintegrate and disappear, but that the connective tissue elements were actively at work, and that no small proportion of the colored corpuscles was ultimately taken into the interior of their protoplasm. This has been amply confirmed, and I think there can be no question as to the fact; but observers are by no means unanimous, however, whether the phagocytes are essen-

[1] Fortschritte der Medicin, Bd. i.

[1] Deutsches Archiv f. klin. Med., Bds. xxv., xxvii., xxxii., xxxiii.

[2] Virchow's Archiv, Bd. 110.

tial in the process. Probably in large extravasations only the peripheral parts are dealt with in this way. The fixed connective-tissue cells with migrated leucocytes all share, I believe, in the process. It must not be forgotten, as Neumann has pointed out, that pigment granules in the interior of the cells may resemble blood corpuscles very closely. However this may be, there can be no doubt that the cells are concerned in the transformation of the hæmoglobin, whether they take it up with the corpuscles or after it is diffused from them.

Remarkable differences exist in the final transformation of the hæmoglobin, resulting in the formation of two pigments, hæmatoidin, which develops chiefly in the central parts of the extravasation, and an albuminate of iron, hæmosiderin (Neumann), which is formed at the boundaries of the clot and wherever the coloring matter comes in contact with the tissues. That this difference is related in some way to the influence of the cells, is in the highest degree probable, though Neumann is not inclined, from his observations, to attribute an important action in this respect to either the fixed or wandering connective tissue elements. The question is one to which a few years ago I gave some study in connection with development of cells containing red blood-corpuscles, and I was much impressed with the truth of Langhans' statement as to the frequency and numbers of these structures in the vicinity of extravasations of all kinds.

In the intestinal canal the leucocytes assist, to some extent at least, in the absorption of fat. Schaefer's observations upon this point[1] show very clearly that during digestion the amœboid cells of the mucous coat become filled with fat globules. How these are obtained we do not as yet know clearly. Whether the fat penetrates between the epithelial cells, or whether the leucocytes pass up between the cells reaching to the surface and here secure the fat, has not been definitely determined; though from the presence of an occasional cell, or even a nest of cells between the cylinders, the latter view is probably the correct one. The leucocytes pass to the central lymph vessels, where they disintegrate, and discharge their load of fat granules which has, meanwhile, in the protoplasm of the cell, been broken up into finer particles, which form the so-called molecular base of the chyle. Possibly, too, the leucocytes may take up other ingredients. It is interesting to note that in many of the lower animals the amœboid cells of the endoderm possess an active digestive function. The observations of Parker and Lankester appear to confirm fully the researches of Metschnikoff on the phenomena of intercellular digestion in invertebrates.

So far, we have been dealing exclusively with the action of phagocytes under normal conditions. And it is clear that these mesodermic cells have important functions throughout the life-history of the organism. Not only in the early steps in the development of the blastoderm do we see them actively at work, but in various stages of development, particularly in that of the bone, their action is of the first importance. In the mature body we have seen that in the lungs, in the intestines, and in the blood-making organs, the phagocytes have most essential functions; but the question of chief interest to-day relates, not so much to this normal process about which there has never been much doubt, as to the supposed part which these cells take in protecting the body against the invasion of parasites.

(To be concluded.)

[1] Monthly International Journal of Anatomy and Physiology, 1885.

ORIGINAL ARTICLES.

ACUTE MANIA AND MELANCHOLIA AS SEQUELÆ OF GYNECOLOGICAL OPERATIONS.[1]

BY T. GAILLARD THOMAS, M.D.

THE object of this paper is to place on record what I think must be a rather remarkable experience as to the occurrence of acute mania and melancholia as sequelæ of gynecological operations.

Before proceeding with my subject, I desire to call attention to the fact that I do not announce these peculiar and alarming states as complications, or necessarily as results, of operative procedure, but merely as sequels which may or may not be dependent upon it. Further, in this connection I would disclaim the position that the operations performed for the relief of diseases peculiar to women are especially liable to such sequences; but all the surgery which I do being of this character, I am forced, as I limit myself to my personal experience, to confine myself to this field.

Let me clearly and distinctly define my idea of the conditions entitled acute mania and acute melancholia. The former is a sudden, decided, and violent aberration of the intellect, usually following a preëxisting melancholia of slight character, and marked by mental exaltation, violent and frequent ebullitions of emotional nature, rapid and irregular muscular efforts, and which is usually unattended by a tendency to inflict injury upon the patient herself or her attendants. The eyes are bright and piercing in their glance; the tongue red at the edges and furred at the centre; the pulse rapid, and the temperature somewhat, though, in the early stages of the affection, not much elevated. The patient speaks with a sharp, metallic, unsympathetic voice, pitched high, and talks rapidly and incoherently.

Acute melancholia is a rapidly developed aberration of the intellect, marked by depression of the mind instead of exaltation. The patient is less excited and less turbulent; sadder, quieter, and more depressed in her bearing. She looks gloomy, and often declares that her death will certainly occur very soon. At times she becomes calm; at others she weeps and bemoans the fact that she is pursued by a Nemesis, in consequence of some crime which she has either committed, or of which she is falsely accused.

I shall relate to-night six illustrative cases. Out

[1] Read before the New York Academy of Medicine, April 4, 1889.

of these, four were violent, and showed great mental exaltation throughout; two were melancholic in their development, but they were acutely, violently melancholic, bustled about wringing their hands in their busy distress, and after a short illness they died, as did two of the four who presented symptoms of pure exaltation.

Case I.—Mary M., aged twenty-one, single, by occupation a cook, had, during the year before I saw her, noticed an abdominal enlargement which had steadily and rapidly increased. During this time she had emaciated very rapidly, was at the time that she came under my care extremely weak and low-spirited, and now felt that, unless relieved very soon, she would die from exhaustion. Physical exploration revealed a large accumulation of fluid in the peritoneum, and, in addition, a round tumor occupying the whole of the left side of the abdomen.

Although the case was not looked upon as a favorable one for operation, it was determined that, since extirpation of the tumor offered the only chance for the saving of life, it should be resorted to. Accordingly I undertook the operation. The patient rallied well after it. She was kept upon beef-tea, milk, and gruels, and quieted by the administration of opium. Her pulse kept up to about 100, respiration was normal, and nothing existed to excite alarm, except the extreme nervous depression of the patient. She asserted that she would certainly die, and really seemed convinced that such would be the case. With the exception of this symptom, she appeared to be progressing favorably until the seventh night. Then she seemed more than usually nervous and excitable, and desired to see the priest, who was accordingly sent for.

On visiting her early on the morning of the eighth day, I found that a great change had come over her during the night. Her eyes were wild and haggard, her face maniacal, her tongue red and dry, and she constantly talked in an incoherent and violent manner, as is so often found to be the case in puerperal mania. As I entered the room she covered her face with the bedclothes, and screamed out that I had leagued with the priest to murder her. Nothing would pacify her, or dissuade her from this view. After soothing her for some time, I succeeded in getting near enough to her to find that the pulse was beating at 160 to the minute. She remained in the maniacal state which I have described till evening, when she sank into coma and died. No post-mortem could be obtained.

At the time of this patient's death, now exactly twenty years ago, I regarded the condition which destroyed her life as one of acute septicæmia, a pathological factor which was only then coming into notice, and one of which we knew almost nothing. That I was in error, I am now convinced by long and melancholy familiarity with septicæmia, and my conviction will, I think, be shared by all in this assembly.

This case was by far the most rapid that I have ever met with. Its acute stage could not have lasted more than thirty-six or forty hours. Its prodromic, or melancholic, stage had existed ever since the operation. It was in all probability that mental state which made the patient constantly persist in the asseveration that her death was certain.

An examination of the membranes of the brain would have been most interesting in this case, but the patient's family, who were very ignorant people, would not yield to any solicitations in reference to the matter.

Case II.—Mrs. X., a wealthy and fashionable lady, came under my care on account of very severe suffering at her menstrual periods. She was thirty-five years of age, the mother of four children, and a stout, well-made, and very handsome woman. Her health was perfectly good except in this respect; as her menstrual periods approached—that is, about five or six days before them—she would begin to suffer such intolerable neuralgic pain in the regions of the ovaries that her life was rendered wretched. She was seen with me in consultation by two of the most eminent general practitioners of this city, and sustained by their concurrence, and encouraged by the wishes of her family, I removed the ovaries.

She recovered rapidly, but at the end of three weeks a low grade of melancholia developed, which soon took on the form of violent acute mania, marked by tendency to strike her attendants. So violent did she become that I removed her to one of the best lunatic asylums near this city. Here she remained for four or five months, entirely insane. Then she recovered and returned home, and although six or eight years have now elapsed she is perfectly well; free, of course, from menstrual troubles, and the ornament and stay of a charming family circle. I have seen her within the past month, and no one would suspect that the well-poised and quiet woman of to-day was ever a lunatic in the wards of an asylum for the insane.

Case III.—A Jewess, multipara, aged thirty-five years, entered my service in the Woman's Hospital and was submitted to the operation of perineorrhaphy. There was nothing peculiar in this operation as to severity, or any other feature, and after it she did perfectly well until the ninth day, when the sutures were removed. At that time she became violently maniacal, talking constantly, jumping out of bed, throwing her arms about, and berating her attendants in strong, though not absolutely improper, language. It proved so utterly impossible to control her that a straight jacket had to be applied. The patient raved violently for four days, and then fell into a comatose condition and died.

Case IV.—Mrs. R., a multipara, forty-two years of age, who had for years suffered from retroflexion of the uterus which was marked by profuse menstruation, came to me from Liverpool, England, for the repair of a badly lacerated cervix uteri. The operation was performed at my private hospital, and presented no peculiar features. Five or six days after this Dr. Chambers, my associate in the hospital, told me that the patient's manner struck him

as very peculiar, and asked me to observe it closely. But I could detect nothing until some time after removal of the sutures, which took place on the ninth day. Then she told me that in a few days she wanted to have a private conversation with me about a terrible crime which she had committed some years ago, and the memory of which had ever since produced the greatest remorse in her mind. Two weeks after operation the patient went to the home of some of her friends in this city, rather odd in her manner and inclined to allude to the mysterious circumstance of which I have just made mention, but still sane in the general acceptation of the term.

After remaining away for two weeks, she returned to my hospital, suffering from acute melancholia. She was constantly depressed on account of remorse for a supposed crime; would sit silent for hours; then get up and pace the room slowly and solemnly, wringing her hands, weeping, and bemoaning her sad lot. She continued in this state, gradually growing weaker, for ten days, when she became comatose and died. Uncontrollable insomnia was one of the most marked features of the case.

CASE V.—Mrs. C., a multipara, sixty-five years old, was submitted by me in my private hospital to amputation of the breast. Even before operation she seemed to be a flighty and eccentric person, but after it all her symptoms were intensified. On the ninth day the sutures were removed, and from this date the patient became greatly depressed, was sure that she could not recover, and wept almost constantly. She suffered during the earlier part of her illness from insomnia, and continued to do so until the symptoms of coma began to show themselves. As the state of acute melancholia advanced she would cry bitterly by the hour, refusing to speak, and even to answer questions by nodding the head. She refused all nourishment, and for a time was sustained entirely by rectal alimentation. Feeding by the stomach pump was thought of, but rejected, because in the patient's weak condition the overcoming of the resistance necessary for passing a tube down the œsophagus would have produced a dangerous result. This patient lived for about two weeks after the breaking out of the attack, and then slowly passed into coma, and died. Toward the close of the case the urine became albuminous, and presented hyaline casts, but not earlier.

CASE VI.—Mrs. M., a widow over sixty years of age, who had in early life borne several children, entered my private hospital to have a cancerous breast removed. Even before the operation, her manner struck both Dr. Chambers and myself as being queer, but the thought that she suffered from any real mental aberration was far from our minds. About a week after the operation she began to grow noisy and irritable, and by the ninth day, when the sutures were removed, she was at times, during the night chiefly, absolutely maniacal. Then periods of perfect calm and lucidity of intellect would occur and last for hours.

At the end of three weeks from the time of operation, partly in consequence of her earnest desire, partly because we thought that a change of scene and surrounding would benefit her, she was allowed to return home. Here, in a few days, violent mania developed, and at the time of the present writing the patient is still insane.

What her exact condition now is I cannot say, for I have to rely merely upon non-professional reports.

There is very little literature extant upon this subject, which until very recently has appeared to attract no attention. For obtaining what little there is I am indebted to two of my friends, Dr. Paul F. Mundé and Dr. Andrew J. McCosh, who have kindly looked it up for me. Prior to the year 1887 there is nothing. During that year Dr. Edward J. Ill, of Newark, N. J., published a very interesting little pamphlet, embodying his own experience and that of some of our German colleagues, entitled "Acute Psychoses following Gynecological Operations."

Dr. Ill collected the records of ten cases, in which acute mental aberration followed gynecological operations. Of these, three occurred in his own practice; one, a case of acute mania, and another, a case of melancholia, followed ovariotomy; and the third, a case of melancholia, resulted from the performance of a minor operation upon the bladder. All recovered.

Reports of the seven cases which follow were all drawn forth by the discussion excited by a paper read by Graube before the Berlin Gynecological Society in 1887. One case reported by Graube occurred after perineorrhaphy, performed by Paul Ruge, and is entitled by the reporter a case of hypochondriasis. The second case was reported by Duerelius as following amputation of the cervix. Czempin reported five cases of acute insanity which occurred at Dr. A. Martin's hospital. Of these, two followed excision of the rectum for carcinoma; one an operation for prolapse of the uterus; one an excision of hemorrhoids, and one followed ovariotomy, which ended fatally on the tenth day, the mania being the cause of death.

In the same year Guanck reported a case of severe melancholia following simple perineorrhaphy.

In 1888 Werth, of Kiel, read a paper on this subject before the German Gynecological Society at Halle, in which he stated that in three hundred operations on the female genital tract he had in six instances observed psychical disturbances, due to the operation. In two cases the operation was total extirpation of the uterus; in two removal of the ovaries, and in two ovariotomy. One patient was violently excited before the operation. In five cases the mental disturbance took the form of melancholia and in one of mania. In one case the psychosis appeared five days after the operation; in one eight days after; in one two weeks after; in another three weeks after, and in the two remaining cases it developed after the patients had been discharged. Of

the six cases three recovered; one after fifteen days, one after four months, and one after eight months. In two of the remaining cases there was no improvement, and the third patient committed suicide three months and a half after the operation. The phenomenon could not be referred to iodoform poisoning, as the drug was used sparingly or not at all.

Sänger, in discussing this paper, said that he recalled several cases in which cerebral symptoms had developed after gynecological operations. In two instances these were clearly referable to iodoform, though little was used on the dressings. In spite of the facts stated, however, he believed that patients with pelvic troubles having a tendency to psychoses should be treated in the same manner as other women.

In an article by Fillebrown, of Hamburg, published in the *American Journal of Obstetrics* for January, 1889, the author mentions three cases of mental disturbance following gynecological operations, observed by Prochowick, of that place. In one case there was removal of the uterus; in one, cystocele and perineorrhaphy, with amputation of the cervix; and in the third, ovariotomy. In one case intense melancholia came on in four months after operation, and when the report was made, nearly three years after, although the patient had improved very decidedly, there were still periods when she showed signs of excitement. In the second case melancholia appeared three months after operation, and one year after, at the time of his writing, the patient still had attacks at intervals, though she was improving steadily. In the third case violent mania developed three months after operation, from which the patient entirely recovered.

In four out of my six cases there was evidence of eccentricity even before operation; and in two of these four cases it was quite marked at times. In all my cases except one there were distinct prodromic symptoms following operation and antedating by some days the formal outburst.

In none of my cases could I discover evidences of hereditary tendency to insanity.

Out of my six cases, four died, one completely recovered, and one case is still in progress.

In all my cases except one the renal secretion was carefully watched and examined; and in none did the kidneys appear to be factors in the mental state.

In four out of my six cases not a particle of iodoform was used at any time; so these are out of consideration in reference to iodoform poisoning as a factor. In the two remaining cases iodoform was used, as I always use it, very cautiously and entirely on the line of cutaneous union, where absorption would have been next to impossible.

Should the suspicion enter the mind of anyone that one or more of my violently maniacal cases may have been instances of sudden and severe septicæmia marked by delirium, I can merely point to my very large experience with septicæmia in its various forms, and reply that I feel very confident that the suspicion is unfounded.

It will be seen that, my cases being added to those recorded by others, twenty-six instances of acute mental aberration following upon the performance of gynecological operations are now placed upon record.

Before concluding, permit me to propound to this learned body certain questions which in this connection have suggested themselves to my own mind.

1st. Were these twenty-six cases of mania and melancholia really due to the operations which immediately antedated them, or did they follow as mere coincident states, *post hoc sed non propter hoc?*

2d. Any great mental strain may be followed by mania. Is it at all remarkable that in the vast number of gynecological operations which have been performed during the last quarter of a century in America and Germany, twenty-six cases of this malady should have occurred?

3d. If the mania which followed operative procedures in these twenty-six cases was a consequence of them, how in the future is a tendency to the accident to be avoided?

4th. Are the operations of gynecology any more likely than other surgical procedures to disturb the condition of the mind?

It has been said that an ignorant man may ask in a moment questions which a philosopher cannot answer in an age. In the present connection I willingly assume the former of these positions. May there be those present to-night who feel prepared to assume the latter, and may their efforts belie the aphorism which I have just quoted.

AN IMPROVED FORM OF SUSPENSION IN THE TREATMENT OF ATAXIA, ETC.

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Suspension in various ways has been so much used in the Infirmary for Nervous Diseases that the novel treatment of ataxia by it has created with us little surprise. A large number of patients are at present using this means, and before long I shall report results; they are so far encouraging.

It has seemed to me, however, that suspension by the armpits is but a stupid plan; for most people it is so painful as to cause the real limit to the time of suspension, which otherwise might be experimentally prolonged.

In watching the application of the Russian apparatus, I recalled the ease with which a child may be lifted from the elbows. Out of this thought came the apparatus figured. It has these advantages: It

bruises no nerves; does not arrest the circulation; is painless, and can be borne a long time, if we need to use it long, and so makes it possible to learn the value of more prolonged suspension. It will be seen that a separate pulley and cord govern the amount of pull on the head. The lift is made from the elbows, and then the head is drawn upon as may be required.

The apparatus is simply two leather slings for the elbows; a band confines the arms to the waist. (See illustration.) The relative comfort of this means of suspension is really remarkable.

By the use of this device we have been able to suspend a person over twenty minutes in perfect ease. To distribute the pressure upon the arms and trunk the vertical straps are widened under each elbow to about four or five inches and reinforced with leather. Sweeping round from the front to the back upright is a wide band which comes against the outer aspect of the upper arm, yet leaving the point of the elbow free from contact. From one elbow leather to the other and securely riveted to each, both across the front and back, pass stout straps adjusted each by a buckle. Again, across the upper part of the chest another strap encircling the trunk gives additional support—not very essential, but well for nervous folk who fear they may fall.

The adjustment of the head was a vexatious problem, but we have solved that now to our satisfaction by one of two ways. By the second pulley, described above, or by a simple mechanism thus: To the ring of each cheek-piece is attached a stout cord which passes over a hook dependent from the large metal cross-bar and thence by a strap inserted in a buckle made fast to the rear elbow leather one on each side. These hooks are about fourteen inches apart. With either of these mechanisms we can raise a patient from the ground by his elbows, and then proceed to adjust the amount of pull needed for his head.

LOBULAR EMBOLIC PNEUMONIA.[1]

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EMBOLIC pneumonia, though recognized and described by Laennec[2] in the early part of this century, was not understood by him. It was then classed as "pulmonary apoplexy." But the earlier experimental researches of Virchow[3] continued by Cohnheim[4] and Litten,[5] and pathologists of even later date have portrayed this subject in a clear and satisfactory manner.

It is proper to state, at this point, that embolism of the lung, as here related to pneumonia, is a matter quite distinct from the so-called pulmonary embolism or its ally cardiac thrombosis. They are associated in our mind with occlusion of the whole pulmonary artery or its larger branches, and the attacks are very acute. Embolic pneumonia is an insidious affection, subacute or chronic in its course; manifesting comparatively few symptoms, and therefore deserving to be classed among the *latent* pneumonias.

In examining a lung that has been the seat of embolic pneumonia, we detect at a glance that it contains one or more nodules of spherical, conical, or pyramidal shape. They have a more or less firm or resistant feel and stand out prominently from the adjacent lung tissue, and vary in color from a dull red to a gray or grayish-yellow; these several tints representing the successive stages of pneumonia, and corresponding in a chronological sense with the stages of engorgement, red and gray hepatization, and resolution or suppuration; such as are characteristic of all true parenchymatous pneumonias. Besides, there is seen roundabout each of these areas a zone of œdema, in which the bloodvessels are more or less filled with stagnating or slowly moving blood, while the alveoli and interstitial tissues are permeated with bloody serum, together with the altered solid constituents of these several parts. Now, though this process may be called lobular, since it is confined to single lobules or groups of them, it differs both from broncho-pneumonia whether in the immature or mature lung, in that the origin of the disease may be traced to the arterial supply, and not

[1] Read at the meeting of the New York State Medical Society, February 6, 1889.

[2] Laennec, Diseases of the Chest, p. 188. New York, 1830.

[3] Virchow, Cellular Pathology, p. 204. London, 1860.

[4] Cohnheim, Vorles. u. Alg. Path., i. p. 134.

[5] Litten, Untersuch. ueber den haem. infarct., Berlin, 1879; Zeigler.

to the bronchial tubes. And, in fact, embolic pneumonia often exhibits the characteristic hemorrhagic infarction, due primarily to plugging of an arterial branch. For in the human lung infarctions from emboli are produced with comparative ease, as we shall presently see.

Indeed, it may be stated that pulmonary infarction from embolism is the rule, in certain forms of cardio-vascular disease and in pyæmia; while the exceptions can be explained in a simple manner. In other words, clots in the veins or in the heart, or any form of endocardial inflammation, and pyæmia, tend directly to embolism of the smaller pulmonary arteries, and hence to infarction and pneumonia; for pneumonia is the natural and regular sequence of pulmonary infarction (from the lodgement of an embolus), even though clinical signs do not betray the inflammation to us.

Since then, such pneumonias are both lobular and embolic it is eminently proper that their characteristics should appear in the nomenclature of pneumonia, and the term *lobular embolic pneumonia* has a claim to recognition.

And further, it may be said of embolic pneumonia, as of broncho-pneumonia, that it can never become lobar unless by a union of the areas of lobular consolidation. I have never seen such an occurrence and am inclined to question whether it ever has been seen. The nearest approach to lobar implication I ever saw was in a case of so-called malignant endocarditis where a portion of the right middle lobe was the seat of an abscess 3 × 1½ inches in diameter. Suppuration in this case was, of course, a sequel to the pneumonia, rather than an integral part of the disease proper.

Now though it is proper to admit here, that the pneumonia called embolic can exist without the presence of an embolus that can be demonstrated at a post-mortem examination, and, on the other hand, that embolism can occur without infarction, still I am prepared to maintain that embolism is competent to produce (as I have already said), each and every example of the disease here designated.

To demonstrate the views of those who recognize embolic pneumonia as a separate form of lung inflammation, it will be necessary to refer to certain antecedent pathological conditions governing embolism. The first to be considered is *thrombosis*, which may be briefly described as the clotting of blood anywhere within the blood-vascular system, whether in veins, arteries, capillaries, or in the heart itself. On the other hand, *embolism* means the plugging of a vessel anywhere, by means of a solid body driven into it. Embolism occurs within the arterial or portal systems, where the current flows with such rapidity that it can force a solid body into a branch or twig and hold it there impacted. The obstructing body is the *embolus* or *plug*. In thrombosis the clot is called a *thrombus*. But a clot or thrombus may be carried to the heart by the venous current and then enter the arterial. The moment it lodges, so as to plug the vessel, it becomes an embolus. Hence, thrombi originating within the domain of the portal system will become emboli so soon as they have been carried by the portal blood to the viscera it supplies, and have effected a lodgement. But a further consideration of this subject is apart from the matter in hand.

We first need to know the causes of blood-coagulation (thrombosis), and without going into wearisome physiological details it is sufficient, for the purposes of this paper, that we recognize its chief determining causes. In so doing we must accept the dicta of physiologists, who tell us that it is chiefly due to the contact of white corpuscles with abnormal vascular tissue. This explanation is suited best to explain coagulation in the moving currents of blood; and has been definitely established by microscopic research.

But coagulation will also occur in any vessel, whether sound or unsound, if only the blood current be arrested. In this latter instance the red thrombus is formed, and from the blood as a whole; in the former instance, the white or mixed thrombus is developed, the one being constituted almost wholly of white blood-corpuscles; the latter from the white with an occasional (often accidental) admixture of the red. These last-mentioned thrombi, the white and the mixed, are slowly but regularly converted into fibrinoid masses, by the alteration of their protoplasmic contents.

Hence, it is apparent that thrombi are chiefly due to alteration in the walls of vessels, or to stagnation of their contents; but as the blood is seldom at rest, and then only for a very brief period, and in comparatively few morbid conditions, while injury or disease of vessels is a matter that is liable to occur frequently during the life of any individual, it follows that the white or mixed thrombi are the most common sorts of thrombi that are to be met with. When red thrombi are formed, it is chiefly in the larger veins, generally of the lower extremities; or in the chambers of the heart.

In the first instance, they find a favorite place for formation behind the valves of the veins, and growing by successive accessions of solid matter from the blood, they extend upward until another valve is reached, where they remain until the vessel is dilated to its utmost capacity, and again extend upward to still another valve. In this way the veins become "corded," the nodular expansions (that can be felt through the skin) indicating the situations of the valves.

Or red thrombi may occur within the heart cavities, whether ventricular or auricular. Their formation presupposes a dilated heart. Now it is the right heart

that is most subject to this affection, caused chiefly, in my experience, by mitral disease. Owing to its weakened action, clots form in and about the columnæ carneæ, or in the crypts of the dilated right auricle. But thrombi may also be formed in any cavity of the heart. Often they form about or on points of endocardial disease, and so at the cardiac valves, or on ulcerated chordæ tendineæ.

These two factors of coagulation may, however, be associated, as after parturition, where clots in the uterine sinuses may be due both to an enfeebled circulation and to the mechanical laceration of veins following the detachment of the placenta.

The separation of clots in such cases may be extensive, and the thrombi may gradually work their way to the heart, probably obtaining accessions as they proceed; and then passing through the heart, lodge in the main trunk of the pulmonary artery, or in one of its important branches. These accidents (as they may be called) are of an acute and very dangerous character, causing sudden death; or, at any rate, symptoms of violent angina. But a consideration of them does not form a part of the purpose of this paper. We have to do merely, as I have already said, with such smaller thrombi as occlude arteries of moderate calibre, leading to subacute or chronic pneumonias.

Again, it not infrequently happens that a morbid growth impinges on the lumen of a vein or artery, and either the progress of the disease or some mechanical injury causes the separation of a fragment that thus enters the venous current and is carried to the right side of the heart. In a case of carcinoma of the rectum that came under my observation in hospital experience, I think it not unlikely that a portion of the diseased mass was dislodged by the operation of mechanically divulsing the strictured part.[1] Pulmonary embolism with pneumonia followed, due very probably to the entrance of a carcinomatous nodule into the upward blood-stream.

It is not so easy to understand how embolic pneumonia may be produced by solid particles carried from the left heart or arch of the aorta. But there is no reason to suppose that the disease *may not* so originate, though the chances of lung implication are comparatively small; because the possible area for the origin of the disease is so limited, and because the solid particles must be comparatively minute. For in this case the bronchial arteries have to carry the disease.

They, however, are distributed to the septa of the lung, and, so far as we know, are not terminal arteries; but it is manifest that embolism can occur in them as well as in branches of the pulmonary artery, though there is no reason that it should be followed by a hemorrhagic infarction.

[1] This case is not included in my Table of 18 cases.

With this brief setting forth of thrombosis and its supposed causes, in the light of modern physiological research, we are prepared to consider embolism in its most important particulars and sequences.

I may premise, by saying that embolism is often, or usually, a trivial matter; that is, in so far as relates to the system at large, because in most organs of the body a collateral circulation is soon and satisfactorily established; the only damage resulting being that the lumen of the vessel between the lodgement of the embolus and the next distal branch is obliterated; provided, of course, the plugging be complete and the plug suffer no disintegration.

But embolism takes on a different aspect so soon as it occurs in an organ provided only or chiefly with *terminal vessels*. Now, as these are the main source of supply in the brain, lungs, and kidneys, it is there that we find typical examples of embolism with infarction. In accepting the conclusions of Cohnheim and Litten on the production of an infarction, the subject is rendered intelligible.

Cohnheim was the first to clear away the main difficulties to an understanding of the process. He did it by experiments on the tongue of a frog. Plugging a nutrient branch, he observed that anæmia of the district supplied was the first important result; but it was soon followed by a backward motion of the venous current, which not only filled the veins but also the capillaries and arterial twigs, behind the plug; the result being *primarily* that wedge-shaped or pyramidal portions of lung tissue were developed, having a dull red color and soft consistency. This was the true hemorrhagic infarction. Reasoning from analogy, it was therefore presumed that a pulmonary infarction was produced in a similar manner.

The explanation offered was that when the pressure was taken off from the plugged pulmonary branch, (the venous pressure remaining constant), a motion of the venous blood took place in the direction of least resistance; which was backward toward the capillaries and thence into the empty arterial twigs. This explanation left out of consideration the arterial pressure in the bronchial arteries, which, though comparatively slight, Litten appears to have found was of decided consequence—and, indeed, was necessary. Hence, we may conclude that the first stage of an infarction is dependent not only upon venous pressure, but to some extent on arterial. But we have to go a step further. Not only are the vessels in the infarct distended with blood, but there is a transudation from them of their liquid contents, and a diapedesis of corpuscles, with naturally some proliferation of the normal solid elements of the part, as the result of vascular engorgement. Thus an infarction is produced, and now we stand on the threshold of a pneumonic inflammation.

For the fact that these infarctions are soon sur-

rounded by a zone of inflammatory œdema, and that the consolidated areas undergo all the successive changes of alveolar inflammation, *shows* that we are in the presence of an inflammatory process—in other words, a true pneumonia; even if the clinical phenomena are often obscure, and even appear to be absent. These remarks are apposite in their place, because it is not every clinician who is willing to recognize the embolic process as the source of true pneumonia.

Embolism does not, however, always produce a hemorrhagic infarction, and, so far as I know, the reason has been sought in the following facts: 1. That the bronchial arteries liberally supply the septa about an embolus; or, 2. That pulmonary capillaries are unusually capacious. Admitting, however, the truth of these allegations, about which there seems to be no doubt, it appears to me that they are merely *in the direction* of the truth; for two important conditions of the adult lung have never, I think, thus far been considered, both of which would operate toward preventing infarction. These are: 1. The retention by the lung of its fœtal state; and, 2. The effects of antecedent inflammatory conditions.

If any one will take the trouble to examine a number of lungs, he will find that there is much difference between these as to the completeness of their development. In some lungs the lobules, especially of the periphery, are so distinct that they can easily be pulled out and separated from each other like the leaves of a tree. In other cases they are more or less completely amalgamated together, so that they can be parted with difficulty; or the amount of fibrous tissue may be so great as to remind one of the immature lung as it is seen prior to the fifth year of life. Again, from a variety of reasons, there may be some interstitial thickening of the lung, as in phthisis, but it is particularly noticeable in the chronic interstitial pneumonia of heart disease. Consequently, in cardiac disease, we may have two processes going on hand in hand: 1. An interstitial thickening, due to chronic venous congestion; 2. Embolism.

Now, in all these conditions, whether congenital or acquired, where the lung is provided with an unusual amount of fibrous tissue, we have increased vascularity, and hence a collateral circulation is easily produced. And, therefore, embolism in cardiac disease does not necessarily tend to hemorrhagic infarction, because nature has guarded against it in several ways. In fact, in any lung, circumstances *must* favor to admit of its development. Near the root of the bronchial tree it seldom—perhaps never—forms, because the capillary circulation is too active. But let an embolus get lodged near the edge of a lobe or in some prolongations of lung tissue (such as we often see, owing to the abnormalities of the lung, especially of the right); then the conditions are favorable to an infarction, and, as a matter of fact, there we find it in all its completeness.

Hence we see that pulmonary infarction is not easily produced in the normal adult lung, and even in a crippled lung, if the cardiac and respiratory movements are healthful, the danger is comparatively slight, because these capillaries are active, and they often and generally can prevent it.

Now, just as capillaries will tend to prevent an infarction, so they will diminish its area after it has been developed, and the original size and shape of the obstructed area will be modified largely, in proportion to their activity. Consequently, an infarction tends to diminish in size, and may, in part at least, be removed while it is going through the successive stages of pneumonia. This statement is sustained by the fact that an infarction is always smaller than the area of the nutrient supply—*i. e.*, in an uncomplicated case, as in the later stages of nonvirulent infarctions. This pathological fact bears upon the prognosis.

But we have not considered the topic of infective emboli, a subject that has only recently been cleared up, to the extent of our understanding its main features. Infective embolism may be due to thrombi, bits of diseased tissue, or bacterial organisms. A study of these processes leads us to a consideration of the so-called malignant endocarditis and pyæmia. Let us review some of their main characteristics. Suppose, for example, that a thrombus has formed at some focus of infection. Disintegration of the clot or dissolution of some morbid product takes place, and the scattered fragments are carried upward to the right side of the heart, and so on to the lungs. In their progress they may be arrested at some point, possibly at a valve in the veins; perhaps at a rough spot in the vessels; perhaps in some nook or cranny of the right heart. A secondary thrombosis is now set up; if in a vein, occlusion of the vessel may occur. Then phlebitis follows, and it is of a suppurative character.

From this new point of departure the infective matter is prepared to start forward with enlarged proportions. Supposing that some of the débris is detained upon a roughened valve, further augmentation takes place, and a truly malignant endocarditis may ensue. But even the smallest amount of débris, starting from a diseased centre, if only it contains active bacterial organisms, can originate pneumonia by their lodgement in the termination of an arterial twig. And the multiplication of these bodies is so rapid that they will soon form veritable colonies, capable of occluding vessels of considerable size. Supposing, however, that they do not find lodgement until the lung capillaries are reached, we shall still have a pneumonia set up, and just as if

there had been an infection; and it can be called embolic, since the vessel is plugged, though it be only a capillary. Hence, an infarction is not positively essential to the production of embolic pneumonia.

It is not necessary to suppose that in such cases there is a microörganism of definite size and shape; any microörganisms may act in this way. Indeed, it is possible that they act simply as carriers of the poison, while at the same time they are constantly generating it. If they lodge in the capillaries, rupture may readily occur and hemorrhage; and we may call the process pulmonary apoplexy, but the term is misleading. For an understanding of these processes we have to depend upon a substratum of facts derived from animal experimentation, a study of the human lung in its course of development, the teachings of morbid anatomy, general pathology, and processes of reasoning based upon all. In no other way can the matter of embolism be made intelligible.

(To be concluded.)

REPORT OF A CASE IN WHICH A LARGE-HEADED BRASS SHAWL-PIN REMAINED IN THE TRACHEA FOR TEN DAYS, AND WAS REMOVED SEVEN HOURS AFTER TRACHEOTOMY.

Profuse Hemorrhage from the Trachea and Expulsion of a Large Number of Fibrinous Casts.[1]

BY H. R. WHARTON, M.D.,

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ANNIE R., aged four years, was admitted to the Children's Hospital January 5, 1889, with symptoms of dyspnœa, which were supposed to be due to the presence of a foreign body in the larynx or trachea, her friends stating that ten days previously she had been playing with a large-headed brass shawl-pin, which she acknowledged that she had swallowed. She had also been under the care of her family physician, Dr. Longenecker, and Dr. T. A. Downs; the latter stated that he had seen the pin in the larynx.

Examination of the patient at the time of her admission to the hospital showed that she presented symptoms of dyspnœa, but not of an urgent character. Auscultation of the lungs revealed the presence of moist râles over their posterior surfaces, most upon the right side, and the patient also had marked paroxysmal cough.

As the case was admitted late in the evening, and as the dyspnœa was not urgent, and the patient was in the hospital under careful observation, Prof. Ashhurst decided to postpone any attempt to search for or remove the foreign body until the following day. Accordingly, on the following day, after an unsuccessful attempt to make a laryngoscopic examination, it was deemed best to perform tracheotomy and to attempt to remove the foreign body. Prof. Ashhurst, under whose care the patient was, exposed the trachea below the isthmus of the thyroid gland and opened it at this point. When the trachea was opened there was profuse bleeding, large quantities of blood escaping from the tracheal wound. A tracheal dilator was hurriedly introduced and the trachea was rapidly cleaned of blood with sponges and feathers, and it was with the greatest difficulty that the trachea could be kept sufficiently free from blood to permit of the child getting a sufficient quantity of air.

It was also observed at this time that there were expelled from the trachea with the blood shreds and masses of fibrinous material, closely resembling those seen in cases of diphtheritic croup in which the trachea has been opened. The amount of this fibrinous material which was expelled and removed with forceps and a feather was so large that we were almost inclined to think that the dyspnœa from which the child had suffered was due to its presence, and that the foreign body had possibly not entered the air-passages. As the hemorrhage had ceased, the dilator was removed and a tracheotomy tube was inserted, and as the child was suffering markedly from the loss of blood, and was breathing comfortably through the tracheotomy tube, it was deemed best to postpone any further attempts to search for and remove the foreign body until she had thoroughly reacted.

The patient was put in her bed and was given carbonate of ammonium freely. Care was also taken to see that the tube was kept free from blood and shreds of membrane, and when I saw her a few hours later I found she had reacted fairly well and was breathing comfortably. Seven hours after the trachea had been opened she began to cough and eject blood from the tracheotomy tube, and I was summoned to see her, in the absence of Prof. Ashhurst.

When I saw her I found she had lost a considerable quantity of blood, and was suffering markedly from dyspnœa. Her color was bad, and she was getting very little air through the tracheotomy tube. I placed her upon the operating-table in a good light and removed the tracheotomy tube and introduced Golding-Bird's tracheal dilator, and upon cleansing the trachea of blood I discovered a large fibrinous cast (see Fig. 1) in the trachea just below

FIG. 1.

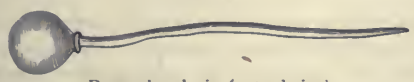
Fibrinous cast from trachea (actual size).

[1] Read before the Philadelphia County Medical Society, February 20, 1889.

the lower border of the tracheal wound, which I removed with forceps. This evidently had occluded the lower orifice of the tracheotomy tube and had been the cause of her dyspnœa, for upon its removal her breathing became good and her color improved.

I took the opportunity at this time to explore the larynx, both from the wound and from the mouth, for the presence of the foreign body, but with a negative result. I now introduced the tracheal tube and she breathed comfortably until after taking something to drink she was attacked by a severe cough, and she soon presented very urgent symptoms of dyspnœa. I again removed the tracheotomy tube and introduced the dilator, and after hurriedly cleansing the trachea of blood and membrane I saw lying close to the posterior wall of the trachea the point of the pin; this I seized with forceps, and with some little difficulty removed it. This proved to be a brass shawl-pin, about two inches in length, with a large head (see Fig. 2); and from its length and the position

Fig. 2.



Brass shawl-pin (actual size).

which it occupied in the trachea, I think its head must have been impacted in the right bronchus. After removing the foreign body the tracheal tube was again introduced, and as her breathing was quiet and regular she was placed in her bed, and soon fell into a sound sleep.

In this case I thought it advisable to introduce the tracheotomy tube after removal of the foreign body, as it had by its presence set up so much tracheal irritation, as evidenced by the membrane and hemorrhage, although I think in uncomplicated cases it is better not to introduce any tube if the foreign body has remained only a short time in the trachea.

The child for the next few days continued to expel from the tube some bloodstained mucus and small particles of the fibrinous matter before referred to, and at the end of six days the character of the expectoration from the tube had changed and consisted simply of glairy tracheal mucus. The tracheotomy tube was now removed and the wound allowed to heal by granulation, and the child was discharged from the hospital with the wound healed on January 21st.

The above case presents some points of clinical interest which I myself have never seen in cases of foreign body in the air-passages, and which I am not aware have been pointed out by other observers.

I refer to the profuse hemorrhage which occurred from the trachea after it had been opened, and to the presence of the large quantity of fibrinous material which was expelled from the wound at the time of operation, and which was removed subsequently. The source of the hemorrhage is, in my mind, uncertain, either arising from the congested and inflamed mucous membrane of the trachea, as the result of the separation of the fibrinous casts or from injury to the mucous membrane by the foreign body, and I am rather inclined to attribute its source to the former cause.

The fibrinous casts which were expelled and removed from the trachea, which so closely resembled the membrane which is seen in cases of croup, is a feature of special interest, for in a number of foreign body cases which I have seen, and in which the trachea was opened after the offending body had remained in it for some time, I have never seen a similar condition obtain. Although in one of these cases, in which a foreign body, a portion of a grain of Indian corn, had been in the trachea for two weeks, there was such marked swelling of the mucous membrane of the trachea that its calibre was almost occluded. In this case the casts seemed to be due to the deposit of lymph from the irritation produced by the presence of the foreign body.

The prognosis in cases of foreign bodies lodged in the air-passages is always grave, for although there are many recorded cases in which such bodies have occupied this situation for months, or even years, without causing alarming symptoms, and recovery has taken place upon their expulsion or removal by operative means.

On the other hand, there must be taken into consideration the danger which constantly threatens the life of the patient from the foreign body changing its position, and suddenly occluding the chink of the glottis, or of the body increasing in size, if its composition be of such a nature as to admit of this from the absorption of moisture from the secretions of the respiratory passages, rendering its expulsion through the glottis less likely.

We must also take into consideration the inflammatory changes which the presence of a foreign body in the larynx, trachea, or bronchus may set up if it has occupied either of these positions for any considerable time, and which of themselves have led to a fatal issue after its expulsion or removal.

The treatment of cases of foreign bodies in the air passages depends somewhat upon the position which they occupy, upon the individual peculiarities of the case, and upon the urgency of the symptoms arising from their presence.

When the foreign body occupies the larynx, if the dyspnœa is not extremely urgent, it may be located by a laryngoscopic examination and its removal by laryngeal forceps is a safe and efficient procedure in skilful hands, but I think in the vast majority of cases this procedure will not be satisfactorily accomplished, for the reason that most patients, especially children, require a certain amount of training before the ordinary laryngoscopic manipulations can be made with satisfaction.

The employment of emetics in the treatment of foreign bodies in the air-passages, while not entirely free from danger, has proved of little service in effecting their removal.

Inversion of the body as a method of treatment of cases of foreign bodies in the air-passages is now generally regarded as a dangerous procedure from the risk of the body becoming impacted in the chink of the glottis, unless there has previously been made an opening into the trachea, or unless the surgeon is prepared to perform an immediate tracheotomy if dangerous symptoms arise.

When the foreign body has passed through the larynx and entered the trachea or bronchus, I think the chances of its spontaneous expulsion are very much diminished; and I think then, a laryngotomy, from the ease and rapidity of its performance, if the dyspnœa is very urgent, will be the best operation to select. On the other hand, if the danger is not so imminent, I think a tracheotomy, and preferably one below the isthmus of the thyroid gland, will be found to be the most satisfactory operation to employ, as by this procedure, if care is taken to make the tracheal wound sufficiently large, thus favoring the expulsion of the foreign body, if it be movable; or, on the other hand, allowing the surgeon through it to make a satisfactory exploration of the trachea and bronchi below or of the trachea and larynx above. A tracheal dilator should then be introduced, and the self-retaining dilator of Golding-Bird will be found to be a most useful instrument; or blunt hooks may be used to hold the edges of the wound apart, and when the position of the foreign body has been ascertained it can generally be easily removed with forceps.

MEDICAL PROGRESS.

Phenacetin in the Treatment of Whooping-cough.—DR. R. HEIMANN, of Landau, preports in the *Münch. med. Wochenschrift* of March 19, 1889, some of the successes which he has obtained with phenacetin in the treatment of whooping-cough. Failing to obtain any satisfactory action from antipyrin, he resorted to phenacetin, the action of which proved to be most satisfactory. The paroxysms of coughing which, before its administration were as many as from ten to fifteen, were, after the drug had been taken, reduced to three, and after several days they disappeared altogether, returning only at night, the drug being then withheld.

To a three-year-old boy the author administered 6 grains in four doses of 1½ grains each, to a two-year-old girl 4½ grains in three doses, and to a nursling 3 grains in four doses of ¾ grain each; after-effects were never observed, 1½ grains of the drug sufficing to keep the paroxysms in check for three hours.

To assure himself of the efficacy of this drug, the author omitted its administration in some cases for a day, which resulted in a return of the number and severity of the paroxysms.

Creasote in Lung Affections of Children.—With a few exceptions almost all observers speak well of the value of creasote in tuberculosis, and agree in saying that even if recovery is not to be hoped for, marked improvement of the chief symptoms follows its employment. All the communications hitherto published relate to adults, and PROF. SOLTMANN, of Breslau, is the first to record his experience of the remedy in children. We have, he says, given creasote in chronic lung diseases with little or advanced destruction without considering the presence or absence of bacilli. After all due allowance is made for care in hospital, suitable nourishment, baths, good air, etc., considerable advantage is evidently derived from the administration of creasote, since cases which were not doing well began to improve unmistakably under increasing doses of creasote. He gives two to seven drops of creasote a day—*i. e.*, from one to six grains, while adults were ordered from four to eight, or even twelve grains daily by Sommerbrodt.

Soltmann's prescription is this:

R.—Creasote	guttæ 4–14.
Sp. æther.	vj–xij.
Aq. dest.	℥j ℥vj.
Sacch. alb.	℥iiss.

A teaspoonful every two hours.

It merits especial mention that the creasote was well borne by all the children. Stomach-ache, nausea, vomiting, diarrhœa, inconveniences which often render treatment by creasote impossible in adults, never occurred. Even in high fever, which by all authors is spoken of as a contraindication, the creasote was taken without disadvantage. That the large doses helped to give the good results is probable from Guttmann's experiments on the antiseptic power of creasote on many microörganisms. Very remarkable in many cases was the increase of appetite and gain in body-weight, the diminution of cough and expectoration, and the gradual disappearance of pathological lung-symptoms. He concludes that creasote exerts in chronic lung-disease with suspicion of tuberculosis a markedly favorable influence, especially in cases where there is not much destruction of lung or other severe complication, and where there is not too high fever, the general strength being relatively good.—*London Medical Recorder*, March 20, 1889.

Antipyrin in the Treatment of Whooping-cough.—DR. DUBOUSQUET-LABORDERIE, at a meeting of the Society of Therapeutics of Paris, held February 27, 1889, stated that for the last two years he had used antipyrin in the treatment of whooping-cough. His object at first in using this drug was to overcome the nervous symptoms, but he was soon convinced that it also influenced the catarrh as well as the specific cause of the disease. In 94 cases he obtained improvement in 71; the duration and the intensity of the disease, as well as the number of paroxysms of coughing, were diminished. Unfavorable symptoms were never observed; in no case did the drug affect the urinary function; in two patients he observed a passing cutaneous eruption; only rarely did gastric symptoms oblige the suspension of the treatment, and when they did occur, the impurity of the drug was found to be the cause. For children between the ages of one and three years, the dose administered was from five to fifteen grains, and above that age, from thirty to sixty grains. Dissolved in Vichy or some other mineral water and some syrup added, the drug is easily taken by little patients.—*Gazette Hebdomadaire*, March 15, 1889.

Paracentesis Pericardii.—In the course of an article upon pericarditis (*L'Union Méd.*, No. 31), M. Paul Chéron cites Fevrier's conclusions respecting the indications for surgical interference, and the best method of puncturing the pericardial sac. Such interference, he says, is called for when the effusion by its quantity threatens to arrest the action of the heart; that in such a case the presence of a concomitant pleural effusion must not be overlooked, and, if existing, should be dealt with first. A second ground for intervention is when the effusion is of long standing, and consequently liable to induce change in the cardiac muscles. A third indication is the fact of the effusion being purulent. Fevrier does not refrain from recommending tapping in tubercular pericarditis, in spite of the fact that out of twenty-two cases of this form of pericarditis so treated twenty patients died at various intervals (from eight hours to seven months) after the operation.

Fairly good results have been obtained in hemorrhagic cases, five out of nine having recovered after tapping. In serous effusions simple puncture suffices, but in purulent cases the pericardium must be incised. Out of fifteen cases of purulent pericarditis treated by incision, eleven died. He warns against delaying the operation too long, and attributes to that circumstance an instance where sudden death followed washing out of the sac, the heart being probably degenerate. The site selected for puncture by the aspirator should be the fourth or fifth interspace to the left of the sternum.

For free incision it is recommended to select the fifth interspace, and to incise the tissues layer by layer for a distance of three or four centimetres, taking care to avoid the internal mammary artery, which may need to be drawn inward; then, having exposed the pericardium, it may be carefully incised with a guarded bistoury, the portion of the membrane being drawn forward by forceps. Great care should be exercised in irrigation, if this be employed.—*Lancet*, March 23, 1889.

Sulphonal in Night-sweats.—Dr. Böttnich, of Hagen, reports in the *Therap. Monatshefte* for March, 1889, the following remarkable action of sulphonal. He administered to a lady, eighty years of age, who had passed many sleepless nights, fifteen grains of sulphonal as a hypnotic. The lady suffered so profusely from night-sweats that she was frequently compelled to change her night-dress twice during one night. After the administration of the first dose of sulphonal, she asked the author whether he had given her anything to prevent the sweating, so rapid was the effect.

Further investigations proved that in most cases night-sweats could be overcome by taking thirty grains of sulphonal before retiring. The author compares the action of sulphonal to that of atropin, the former, though, possessing none of the unpleasant after-effects of the latter. Although the remedy was omitted every second night, the sweating in most cases was still quite perceptibly diminished.

Hypodermatic Injections of Quinine in Malaria.—Dr. J. A. Correa de Carvalho, of Extremoz (Portugal), has recently recorded (*Coimbra Medica*, February 1, 1889) a case of malaria which he succeeded in curing by hypodermatic injections of quinine. The patient was a woman aged thirty-five, in whom the disease had reached the cachectic stage. The skin and mucous membranes were discolored, and the spleen, which was very tender on pressure, reached down to the left iliac fossa, and extended toward the right to within one to one and a half inches of the middle line. The stomach was dilated, and the patient suffered much from dyspepsia. The temperature varied from 102.2° F. in the morning to 100.4° in the evening. Sulphate of quinine was given internally in capsules and in pills, but only with the effect of aggravating the gastric disorder. On November 18th hypodermatic injections of neutral hydrochlorate of quinine were commenced, at first in doses of six grains and afterward eight grains. The temperature soon began to fall even in the morning, and by the middle of December it was normal, never exceeding 98.6° in the evening, and being sometimes below 98° in the morning. On January 13th the patient was discharged cured, the spleen being much reduced in size and not at all tender, and the discoloration of the skin and mucous membranes having almost entirely disappeared. Her dyspepsia had also ceased to trouble her. The injections, which were all made under the skin of the forearm, caused a little irritation. A few small abscesses formed around some of the points of puncture, and had to be opened, but gave no further trouble.

The following is the formula of the solution used for injection:

℞.—Basic hydrochlorate of quinine .	gr. xv.
Pure hydrochloric acid . .	♏j.
Distilled water	℥ss.

These ingredients should be placed in a test-tube and exposed to the action of gentle heat. A clear solution will be obtained, each sixteen minims of which will contain eight grains of neutral hydrochlorate of quinine. The solution should be injected warm. Dr. A. Rocha (*Coimbra Medica*, November 15 and 16, 1888) first recommended this method, which he had employed successfully in a patient suffering from malaria, to whom it was found impossible to give quinine in any other way. Drs. Buermann and Villejean had independently described a somewhat similar method a short time before. —*British Medical Journal*, March 16, 1889.

Treatment of Variola and Varioloid with Cocaine.—Dr. E. Ory gives, in an exhaustive article in the *Revue gén. de Clin. et de Thér.*, No. 9, his results obtained with cocaine in the treatment of variola and varioloid. They are as follows: In an extremely severe case of confluent varioloid immediate improvement and arrest of evolution of the papules were observed after the patient had taken somewhat over ten pastilles containing each $\frac{1}{32}$ of a grain of cocaine. Further treatment consisted in the administration of ten drops of a five per cent. muriate of cocaine solution, which dose was repeated four times daily; in less than ten days the patient was cured. In a second case of varioloid a cure was effected by the same method of treatment five days after the eruption first made its appearance. A third case of severe hemorrhagic varioloid healed without scars after five days' treatment. Also, in two cases occurring in children, a cure was effected after five and six days respectively. As already stated, the author administers to adults ten drops of a five per cent. solution four times daily, while

to children were given, four times daily, eight drops of a one per cent. solution. It is often difficult to make a positive distinction between cases of variola and varioloid, as the pustules dry up immediately after the application of the cocaine. The fact that cocaine is capable of neutralizing the variola-virus in the infected body has led the author to believe that it can prevent infection of the healthy organism, and that it should be used as a preventive remedy in the immediate surroundings of the sick chamber.—*Wiener med. Presse*, March 17, 1889.

Antiseptic and Analgesic Cotton for the Dressing of Wounds.—DR. ELLER (*Revue gén. de Clin. et de Thérap.*, March 7, 1889) recommends the following as an analgesic and antiseptic mixture:

R.—Cocaine hydrochlorate	3	parts.
Water	60	"
Boric acid	6	"
Glycerine	8	"
Carbolic acid	2	" —M.

Dissolve the cocaine in the water, and the boric acid in the glycerine; then mix these together and add the carbolic acid.

This preparation serves to render antiseptic as many ounces of cotton as ounces of water have been used. The cotton thus obtained serves as a dressing for burns.

What Medicines may be Given to Nursing Mothers.—FEHLING has opened an important field of inquiry, by a series of experiments to determine what drugs may be safely given to nursing mothers. He found that salicylate of sodium was dangerous to the infant when given to the nurse in doses as large as forty-five grains daily. Iodide of potassium may be given in doses of three grains daily. Iodoform enters the system of the infant more readily through the nurse than when given to the child. Even when the wounds of the mother were dressed with iodoform, iodine was found in the child's urine. He found that mercurial salts given to the mother affect the child very slightly, if at all, and that twenty-five drops of tincture of opium (German Pharmac.) and one-tenth to three-tenths of a grain of morphia could be safely given to the mother. Chloral may be given in doses of twenty-three grains to forty-five grains. Atropine affects the child very quickly, even in small doses. He denies that salads and acids have an injurious effect on the child.—*Medical Press*, March 20, 1889.

Eczema of the Nails.—DR. DE LA HARPE, *privat-docent* in the University of Geneva, mentions in the *Revue Médicale de la Suisse Romande* a somewhat rare case of eczema of the nails, which came under his notice while he was acting as medical officer at the well-known baths of Louèche, or Leuk. The patient was a man of sixty, who had been sent to Louèche by Prof. Hardy. There was no history of gout or other hereditary disease, and up to two years previously the nails had been in excellent condition. The first sign of anything wrong that was noticed was a slight redness about the ungual furrow of the ring finger of the right hand, which was at first supposed to be panaris, but instead of going on to suppuration it was followed by morbid changes in the nail itself, which soon became thickened and friable, with a roughened surface. The nails of the other fingers on both hands subsequently became affected, as shown in figures appended to the paper. When seen by Dr. de la Harpe, the affected nails were swollen, bent transversely, and marked with longitudinal striæ or grooves. Two apparently healthy nails showed fine depressed points.

Regarding the cause of these appearances, which are the first signs of the commencement of the affection in otherwise normal nails, Dr. de la Harpe remarks that he has seen a case of chronic eczema of the hand in which there were a number of longitudinal grooves on the nails, some of them interrupted—that is to say, in sections. The punctate marks on the nails in the case in question may possibly be analogous to the interruptions noticed in this latter case. As to the treatment by means of the Louèche waters, it appears to have effected marked improvement.—*Lancet*, March 23, 1889.

A Cause of Biliary Calculi in Women.—MARCHAND finds women's stays a frequent cause of the formation of gall-stones. The pressure exerted by these articles of dress on the liver is transferred to the gall-bladder and its ducts. This pressure is not uniform; it is more constant by day, but decreases at night, or is exerted only when the form of the thorax is already altered by pressure. This pressure causes the retention of the bile in the gall-bladder. During the daytime the bladder tends to empty itself; in the intervals of digestion, and during the night, there is a tendency to refill itself. If the daily evacuation of this organ is prevented, or only imperfectly effected, there is a recurrence of stagnation of bile and consequent disposition to the formation of gall-stones.—*Medical Press*, March 20, 1889.

A Simplified Method of the Cold Water Treatment of Fever.—DR. PLACZEK (*Virch. Arch.*, CXV) has of late taken up this treatment, at first advocated by Preyer and Flasher, in 1884, and by Hiller in 1886, the latter having successfully used it in treating soldiers suffering from sunstroke. This treatment consists in spraying the entire body surface with water until a fall of temperature is obtained.

In an animal with high temperature, Dr. Placzek succeeded in reducing the same two degrees by spraying the body with one and a half pints of water of from 53° to 59° F. and immediately after with three ounces of 95° F. The after-spraying with water of a higher temperature dilates the capillaries and this induces a consequent loss of considerable body-heat.

Thus in a tuberculous subject whose evening temperature would at times reach 104° the author reduced the same to normal by using somewhat over one pint of water of from 59° to 66° F. The temperature was with ease kept for four hours at this standpoint and then gradually allowed to rise, but not allowed to reach its former high standing.

Compared to the ordinary method of bathing, this treatment has the advantages of simplicity and comfort, factors not to be disregarded in private practice. The patient simply remains in bed, coverings and shirt are removed, a rubber or wax-cloth laid under him, and the *modus operandi* proceeded with. As each application does not require more than twenty-five minutes, it can be repeated several times daily.—*Prager med. Wochenschrift*, March 20, 1889.

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SATURDAY, APRIL 13, 1889.

CATGUT RINGS AS A SUBSTITUTE FOR BONE PLATES IN LATERAL ANASTOMOSIS OF THE INTESTINES.

IN the *New York Medical Journal* of March 23d, Dr. ROBERT ABBE has reported another case (in addition to the four already reported by Senn) which illustrates admirably the value of lateral anastomosis of the intestines, and suggests what we think will prove an important addition to our means of effecting it.

The case was one of carcinomatous obstruction in which, under cocaine anæsthesia, Abbe opened the abdomen and found the colon distended to eight or ten inches in diameter. A temporary artificial anus was established, giving escape, according to the author's "moderate estimate," to twenty-five or thirty pounds of feces, including in it fish-bones, cherry-stones, grape and melon seeds, large fragments of bone the size of the finger-nail, together with scraps of oakum, yarn, and wood-shavings. In six weeks after this relief, an operation was done to overcome the stricture. This was effected in the ordinary way by the use of Senn's decalcified bone plates, the seat of the stricture, which proved to be cancer, being in the ascending colon.

The most important point, however, in Abbe's paper, is his suggestion of the substitution of catgut rings for Senn's plates. These plates are admirably made, and can be obtained from Milwaukee, but if one desires to make them for one's self, it involves a number of days and considerable labor. Unless, therefore, the operator has them always on hand, or the case can wait, serious embarrassment might arise. Abbe's suggestion is that the heaviest catgut, softened by hot water, shall be wound four times around the ends of three or four fingers, according to the size of ring desired, and then wound over and over again with the same sized gut to hold the primary strands together. Four to six threads are then simply tied around the ring or passed through by a needle. The wall of the bowel is to be penetrated, and the two openings secured in apposition by these threads. They should be used, we think, single, and not double, as shown in Abbe's cut. The advantages of such rings are that they can be made extemporaneously in a few minutes; they are elastic and present a larger opening than Senn's plates, a point of some importance, for the opening in the latter has sometimes been found in practice to become blocked.

But a few days ago Abbe carried out his suggestion in an operation upon a case of fecal fistula not yet published, and the rings were used efficiently. The result of the operation at the end of ten days was admirable, and the rings bid fair to be an excellent substitute for the bone plates. In addition to the threads attached to the rings passed through the wall of the bowel, as advised by Senn, a few Lembert sutures should be applied in the interspaces, perfect approximation being secured in this manner.

Abbe has also suggested in his paper that the two ends of the gut should not be laid side by side with the ends together, but with the ends pointing in opposite directions. The peristalsis then would be in the same direction for both parts, and the current of the feces would be simply switched, as it were, to a parallel side track, thus avoiding considerable contortion of the gut, which Abbe found in one of his experiments on dogs.

In the *Lancet* of March 16th is a striking confirmation of the value of lateral anastomosis furnished in a paper by JESSETT and HORSLEY. They reprint a large number of experiments and give the results as follows: The operation, as at present practised by the Czerny-Lembert suture, gives a mortality of 86.6 per cent., as against 24.99 per cent. of enterorrhaphy by Senn's invagination method, and only 7.69 per cent. by the method of approximation plates. The time required by the Czerny-Lembert method, which necessitates fifty to sixty sutures, was an hour and a half; the method by Senn's plates required only twenty minutes and

needed but four to six sutures. It is with no little pride that we can point to this increased improvement as an American achievement.

FIRST HELP ON RAILWAY TRAINS.

IT is a humane foresight which, upon all large ocean-going vessels, makes ample provision for the relief of accident and sickness among both passengers and crew. This provision might be imitated upon railways so far as to furnish some of the simpler forms of surgical appliances for the first treatment of wounds and hemorrhage, in cases of accident. It will often happen that casualties occur at points distant from cities and the succor of the surgeon, and there will often be a dearth of any kind of dressings or of hemostatics. It would not be a difficult matter to provide all trains with packages containing a tourniquet, lint, and aseptic or styptic applications, having their method of use plainly described upon the wrappers. The employés of railroads are commonly of an intelligent and teachable class, and they—or a portion of them—could, without difficulty, be instructed in the utility of these dressings.

The humane aspect of this proposition is not the only argument for it; it appeals also to the self-interest of the companies, since the damages that are meted out to them in the courts, in consequence of railway accidents, are liable to be laid in heavier sums if the injuries for which they have to pay assume an aggravated form in consequence of delayed treatment. The interests of the trainmen are also involved, since a greater proportion of the injuries that occur happen to them than to the passenger class, and it cannot fail to lighten the anxieties of many of them to know that they will not be absolutely wanting in the means of self-help in emergencies, and all the more so if some one of their own number shall have been taught how to use those means.

A NUMBER of the strongest State medical societies or associations will hold their conventions within the next sixty days: that of Alabama, "the model organization of the South," opened on the 9th inst., at Mobile; Georgia opens on the 17th inst., at Macon; Texas, on the 23d inst., at San Antonio; Michigan, May 9th, at Kalamazoo; Illinois, May 21st, at Jacksonville; and Ohio, May 22d, at Youngstown. The National Association of Railway Surgeons will hold its annual meeting at St. Louis, beginning May 2d; its officers announce that this will probably be "one of the largest gatherings of medical men ever held in this country."

THE Health Commissioners of New York adopted the following resolution last week: "That Drs. T. M. Prudden, H. M. Biggs, and H. P. Loomis, the pathologists of this department, be and are hereby requested to formulate a brief and comprehensive statement regarding the contagiousness of tuberculosis in man, stating therein the evidence of the same, and recommending in the briefest possible manner the simplest means of protection from its influence."

THE Medical and Chirurgical Faculty of Maryland will hold its ninety-first annual session at Baltimore, April 23 to 26, 1889, under the presidency of Dr. John Morris, of Baltimore. Prof. William Osler, of the Johns Hopkins University, will deliver the annual address, on "The License to Practise," with special reference to State Boards.

DR. CRAIK, Emeritus Professor of Chemistry, has been appointed Dean of the McGill Medical Faculty, in place of the late Dr. Howard, and Dr. George Ross, Vice-Dean. Dr. Ross has also been transferred from the Chair of Clinical Medicine to that of Practice of Medicine. Dr. Richard MacDonnell becomes Professor of Clinical Medicine.

AT recent commencements the degree of Doctor of Medicine was conferred as follows: University of Maryland, 110; University of Buffalo, 46; Atlanta Medical College, 43; Southern Medical College, Atlanta, 35; Medico-Chirurgical College, Philadelphia, 30; Beaumont Hospital Medical College, St. Louis, 22; St. Louis Medical College, 15.

THE following changes have occurred in the corps of teachers of Bellevue Hospital Medical College: Dr. E. L. Keyes has resigned the Chair of Genito-urinary Surgery, Syphilography, and Dermatology, and Dr. Samuel Alexander, of the Class of 1882, has been appointed to fill that chair. Dr. Carlos F. Mac Donald, Superintendent of the State Asylum for Insane Criminals, at Auburn, of the Class of 1869, has been appointed Professor of Mental Diseases.

THE Governor of the State of New York has nominated Dr. Allan McLane Hamilton to be Health Officer of the Port of New York. It is reported that the policy of "hanging-up" the nomination will be

followed in the State Senate so as to prevent the removal of Dr. W. M. Smith, the present incumbent.

It is stated that nearly one hundred and fifty Americans have been attending medical lectures at Vienna during the past winter.

It is proposed to raise an endowment fund of $100,000, to be called the "C. R. Agnew Memorial Fund," the income of which shall be applied to the running expenses of the Manhattan Eye and Ear Hospital. It is believed that there are many friends of the late Dr. C. R. Agnew who will gladly contribute to this fund to mark their sense of his own generous nature, and to aid an institution which he founded and cherished with self-denying care.

The *Brooklyn Medical Journal* for March points with satisfaction to the financial failure of a patent medicine known as the "Scotch Oats Essence." The effects of the company were recently sold out in New York City, under the hammer of the sheriff, sixty-three gross of the nostrum selling for four cents per bottle, the price of which at retail had been one dollar formerly. The downfall of this dangerous and extensively advertised patent medicine was brought about primarily by an analysis by Dr. Eccles, of Brooklyn, by which it was made known that morphia was its efficient ingredient. The unassisted efforts of a private practitioner were thus the means of a palpable victory over quackery. It would be well if a prize fund could be established for the recognition of such life-saving action.

The Clinical Institute of Professor Ziemssen, at Munich, is a noteworthy feature among the educational institutions of that city. It forms a wing to the medical side of the hospital, and is sufficiently spacious to accommodate an out-door clinic and an elaborate provision for exhaustive clinical research. It was built six years ago, according to plans devised by Ziemssen himself, his object being not so much to give additional means for study to the average student as to promote original clinical work. It is sustained by an annual grant of three thousand dollars. It has a suitable lecture-room, with laboratories for medical chemistry, microscopy, bacteriology, and electrical experimentation of every kind. It also contains an ample reference library. Herr Ziemssen is autocrat, and with the aid of one regularly appointed assistant, gives direction to the scientific investigation of the medical cases.

Dr. J. H. Kidder, of the Smithsonian Institution, and formerly of the Navy, died in Washington, last Monday, of pneumonia, aged fifty years. Dr. Kidder was a native of Maryland. He graduated at Harvard, and then entered the Navy as an Assistant Surgeon, continuing in the service until about six years ago, when he resigned. During the latter part of his connection with the Navy he was detailed for duty on the Fish Commission under Prof. Baird, where he remained until the death of the latter. Since then he has been Director of the International exchanges in the Smithsonian Institution. Dr. Kidder was a chemist of high rank, and in that field did some excellent work at the Institution.

Dr. Charles J. B. Williams, Physician-Extraordinary to the Queen, died at Cannes on March 24th, in the eighty-fifth year of his age. For nearly thirty years prior to his retirement from active professional work in 1875, Dr. Williams held a leading place among the London consultants. He was the first President of the London Pathological Society, of the New Sydenham Society, and in 1873 he was elected President of the Royal Medical and Chirurgical Society. He was the author of well-known works on the *Diseases of the Chest*, on the *Principles of Medicine*, and on *Pulmonary Consumption*. He also took an active part in the formation of the Hospital for Consumptives, at Brompton.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 4, 1889.

The President, Alfred L. Loomis, M.D., in the Chair.

Dr. T. Gaillard Thomas read a paper on

ACUTE MANIA AND MELANCHOLIA AS SEQUELÆ OF GYNECOLOGICAL OPERATIONS.

(See page 396.)

Dr. James B. Hunter said he was personally cognizant of several cases, including two or three of the more remarkable ones reported by Dr. Thomas, and he could say that the author had underrated rather than overrated the peculiarities of the cases. He thought Dr. Thomas was correct in supposing that gynecological surgery was not more liable to the accident than other surgery. He was present a few nights before at a meeting where the relation of cases of this kind had taken place, and all the surgeons present had some cases to relate. He thought the cases might be classified. The first class, and he thought the smallest, included those in which the psychosis was due entirely to the operation. The

second class included patients in whom there was a predisposition to the development of some nervous trouble, and in whom the operation served to light up the disease. The third class included those in whom the disease developing at the time of an operation was a mere coincidence, and with or without the operation the mental trouble would have progressed. Such cases could not be easily discriminated beforehand. He had one case in which the mania developed a year after removal of an ovarian tumor. He was unable to say whether there was any connection between the operation and the insanity.

There was still another class of cases, alluded to by Dr. Thomas when he spoke of the possibility of iodoform poisoning. This class included all those cases in which the mental symptoms were dependent upon some drug used during the operation, as iodoform, bichloride, carbolic acid, etc. A small quantity of iodoform would develop acute mania in some patients. He also thought that in some patients predisposed to insanity ether might bring on an attack. His impression was that the psychological condition should not interfere with operating. Then there were severe nervous diseases, as epilepsy, which were sometimes cured by an operation. He thought there was some connection between the mental disturbance and the amount of surface exposed during the operation. In operations on the breast and peritoneum, there was greater liability to such disturbances.

DR. NICHOLS, President of the Bloomingdale Asylum for the Insane, said that during his term of service, eleven years, there had been but two cases of insanity following gynecological operations in the institution, one being a case operated upon by Dr. Thomas (according to the statement of the patient's friends), the other a case operated upon recently for removal of one ovary. The latter was suffering from a grave type of suicidal melancholia, the former from paranoia or primary delusional insanity. In both an abdominal fistula had remained, which, however, caused no material pain or drain. He thought the whole number of cases reported, twenty-six, was quite small in proportion to the number of gynecological operations. He saw only one or two possible reasons for insanity following gynecological operations, one being prolonged anxiety from contemplating the operation, and the other the exposure of a considerable surface during the operation, as in removal of tumors of the breast and in laparotomies, which caused more shock than where small surface was exposed.

DR. PAUL F. MUNDÉ had first had his attention called to this subject by Dr. Ill's paper. At that time he thought he had seen no cases of the kind, but he was now convinced that one operated upon by him seven or eight years ago belonged to this class. Twenty-four hours after the operation it was necessary to apply the strait-jacket, but the patient recovered. No iodoform was used.

The past winter his attention had been called to the subject again by a case of Dr. Townsend's, and he had had two himself. One was in a woman on whom he operated for an ovarian tumor with a twisted pedicle; she was of rather melancholic disposition, and after the operation she refused to speak for three or four days. The temperature and pulse were normal. The other case was in a patient on whom he performed Alexander's operation and a plastic operation on the walls of the vagina for prolapsus of the uterus. Some hours after the operation the woman became maniacal, requiring the strait-jacket. There was some fever, the pulse was rapid, but there was no sepsis. The patient recovered after remaining maniacal at least a week.

While considering these cases he had been disposed to think that such mental disturbance was more likely to follow removal of the ovaries than other operations. The natural menopause often caused a marked change in the patient's conduct. Might not also the menopause brought on prematurely produce a marked influence? Since the occurrence of his second case, however, he had thought removal of the ovaries had nothing in particular to do with it. It seemed to him that gynecological operations were no more likely to be followed by mania than other operations. He did believe that long meditation and anxiety regarding the operation might have considerable to do with it. Also, that prolonged anæsthesia had an influence. He did not, however, believe that iodoform was a cause, for iodoform was often used in large quantities without producing any maniacal symptoms.

DR. WILLIAM M. POLK said he found himself taking a position somewhat at variance with that of the gentlemen who had spoken. He considered women more predisposed to maniacal disturbance subsequent to operations than men, especially operations upon the genital organs. It had been his experience that they were more emotional, and all must have observed that certain functions of the genital organs in women were associated with a great many mental disturbances. In fact, if he found that a woman presented any abnormal mental action, he preferred not to operate upon her. He said he had been led to this view of the subject from having had three of these unfortunate cases, each one of which ended fatally. They were cases of pure mania, not of drug poisoning. There were several facts which had been advanced in explanation of the development of mania after operations. One was the use of an anæsthetic, but he thought it had not been proven that the anæsthesia had any tendency to cause mania in other subjects, and why should it, then, in gynecological patients? Some had thought the nervous disturbance due to the exquisite sensitiveness of the perineum in the female, while others thought it due in some way to disturbance of menstruation. He was prepared to admit that a patient who had a long time in which to contemplate the knife might be thrown off her mental balance, but he did not think this would entirely account for the terrible picture shown to-night.

One of his three patients had been subjected to Alexander's operation. The autopsy showed nothing in the brain or at the seat of the operation to account for the mania and death. The second case was one of suprapubic hysterectomy in a patient whose mind was much worked upon by jealousy. There was no sepsis. She had a sister who was a little queer. The third case was in a patient whose mind was decidedly affected when operated upon, and she went on to develop violent mania, requiring the strait-jacket.

DR. W. GILL WYLIE could not say that his personal experience would permit him to give very positive evidence on this subject one way or the other. He certainly was not positive that gynecological operations

caused insanity more than other operations. But there were several things which he thought should be taken into consideration. One of the first was that many gynecological operations were performed upon women who were imperfectly developed, and that imperfect development had its influence in predisposing to mental troubles. Perhaps it was a mere coincidence that those who had an imperfectly developed uterus often had an imperfectly developed brain.

He could say this, that he had operated upon quite a number of women who were insane at the time of the operation. One case was of sufficient interest to relate, being that of a woman who showed insane symptoms after the birth of a child. She was transferred to an asylum, was there six months, and was considered incurable. Her husband brought her to New York, and Dr. Wylie treated her for subinvolution of the uterus and erosion of the cervix. After the treatment of the uterine troubles she recovered and returned home sane. During the menstrual periods, however, she showed slight return of the mental symptoms. She had another child, and somewhat similar insane symptoms developed afterward, but he did not see her for twenty months. On reaching New York she became violently insane. He found disease of the tubes and ovaries and removed them, and the patient returned home much improved mentally.

The only case of acute insanity following any of his operations was in a patient who had had a severe form of epilepsy for some years. Whenever he found any evidence of disease about the genital organs he was perfectly willing to operate upon them. He had formerly thought removal of the tubes and ovaries had a tendency to depress the patient mentally, but later observation had about changed that opinion.

One fact which deserved mention was that all forms of chronic uterine trouble were generally attended by disease of the rectum, if not of both rectum and colon, and he had found that treatment of these latter difficulties went far toward correcting nervous disturbances. He recited one marked case of the kind. He did not wish his remarks to be considered final on this subject, he might in the future change the views which he had expressed to-night.

Dr. Townsend, of Albany, related a case seen by him the past winter, one in which he performed salpingo-oöphorectomy on an hydræmic patient. She went along nicely for four days, when the flow commonly following the operation came on, and with it the patient showed marked mental depression. The wound healed by first intention, the bowels moved regularly, the appetite was good, but there was a rapid pulse both before and after the operation. On the evening of the seventh day the patient became hysterical, the next day became melancholic, and in the evening was maniacal, and had to be placed in the strait-jacket. She died in the night in coma, apparently due to exhaustion. He thought the melancholia which first existed might be due to the hydræmia and illy nourished condition of the brain, while the mania might be due to hyperæmia following vasomotor paralysis.

Dr. Landon Carter Gray thought that Dr. Thomas deserved the credit of having described a new genus of insanity, having related six cases and referred to twenty others. Of the six, three were of the type of mania, three of the type of melancholia; but not one of the three of mania was like any of the recognized forms of mania.

There is an idiopathic form of acute mania in which the patient becomes quite violent, but not uncontrollable, and there is an acute form of mania which has been described under the name delirium grave, really in all probability a cerebritis. The cases described by Dr. Thomas were like those of delirium grave. This seemed to show that there was a general underlying condition following the gynecological operation which led to the insanity. In Dr. Thomas's cases the insanity came on a certain period after the operation, which would point to some general symptom appertaining to the disease, as drug poisoning or micro-chemical product in the blood, rather than to reflex action. It seemed to him this belonged to what had been called post-febrile insanity, some cases of which were of mania, some of melancholia. In all the cases heretofore described of post-febrile insanity there had been great lucidity of the delusions throughout, and a good prognosis. But four of Dr. Thomas's cases had died, which would be likely to occur in none of the other forms of insanity mentioned, excepting delirium grave. In the latter, nearly all patients had died. He would call the form of post-febrile insanity, described by Dr. Thomas, not mania or melancholia following gynecological operations, but post-operative insanity, which demarcated it from ordinary post-febrile insanity.

The President mentioned the case of a patient of his on whom Dr. Lange operated and removed one kidney. She remained perfectly sane up to ten days after the operation, then developed acute mania, remaining insane three weeks, then recovered, and was now in perfect health.

Dr. Thomas, in closing the discussion, said he was exceedingly obliged to the gentlemen for the kindly way in which they had discussed his paper, and he had really but little to say in reply. Regarding iodoform, he felt that the advantages attending its use hardly justified its employment if it was capable of producing such grave results as had been described to-night. While he employed very little of it, and that dusted along the line of the abdominal sutures which closely coaptated the edges of the external wound, yet he was not able to deny Dr. Hunter's position that even under those circumstances iodoform might produce poisoning. He had had three or four cases of iodoform poisoning in which the patient was of insane mind a few days, but he had not included them in the paper.

With regard to ether being a factor in these cases, he did not think it possible, for in all his experience with it he had not known it to produce insanity. But, if he were permitted to digress a little from the subject, he would say that he had seen such bad results from ether in the way of prolonged vomiting and general discomfort, that he was strongly inclined to believe we ought to give it up in laparotomies, and try chloroform again, as European surgeons were doing.

Regarding Dr. Nichols's remarks as to the seeming rarity of this accident compared with the number of gynecological operations, Dr. Thomas thought the discussion had shown that it was not very rare, for twelve cases had been narrated during the evening in addition to those mentioned in his paper, and one of the twelve was a case operated upon by him, as stated by Dr.

Nichols, and this was the first time he had heard of it. He had been much impressed by the remark made by Dr. Nichols regarding the influence of long anticipation of the operation. It was on account of such evil influence on the mind of the patient that he advised his students always to remove tumors from the female breast, of whatever size and whatever nature. After removal, the microscope would tell the story. Dr. Townsend's case had interested him very much, as it closely resembled two of his own.

He felt like repeating the questions with which he had closed his paper, and expressed the hope that other cases would be reported as they occurred, and that the subject would be investigated more thoroughly.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 6, 1889.

THE PRESIDENT, D. HAYES AGNEW, M.D., IN THE CHAIR.

DR. WHARTON SINKLER communicated the following

CASE OF POTT'S DISEASE FROM INJURY, FOLLOWED BY COMPLETE PARAPLEGIA. TREATED SUCCESSFULLY BY SUSPENSION.

John T., aged eighteen, native of Ohio, was admitted to the Orthopædic Hospital and Infirmary for Nervous Diseases, February 16, 1888. Father and mother both living and healthy. He is the eldest of three children; others are healthy; there is no history of consumption in the family; has never had any of the diseases of childhood; always healthy and strong. In September, 1886, some of his school-fellows "bumped" him against a tree. Acute pain in the spine was produced by this at the time, and afterward, in either sitting or standing, pain was remarked; but when lying on his back he was comparatively easy and free from pain. The pain was first greatest in the epigastrium and radiated thence into the back, down into the legs, and up into the shoulders. About three weeks after the injury, he accidentally discovered a lump in the dorsal region of the spine. Soon after observing this, the lump became very painful and was sensitive to the touch. He continued to sit up and walk, but progressively became weaker, and after the second week in January, 1887, was unable to walk at all. About three months after the injury, he began to lose sensation in the legs; the knees began to get stiff in the spring of 1887. He has been unable to sit up, but was comparatively comfortable in bed.

Condition on admission: Angular curvature at seventh dorsal vertebra; can sit up with the aid of a leather corset which he has worn for some months. He is unable to move the legs at all; knees and ankles generally in a state of rigidity; knee-jerk grossly exaggerated; patellar clonus present; ankle clonus very marked on both sides; toe reflex present (this is very striking on both sides). The condition known as *spinal epilepsy* readily induced; plantar reflex exaggerated; no cremasteric or abdominal reflex can be elicited; sensation is impaired, but is not lost. He can localize and distinguish touch anywhere on legs or feet; no interference with the functions of bladder or rectum. There is no pain in the spine. There is a bedsore the size of a ten-cent piece over the sacrum. The circulation in the legs is poor; the feet are constantly cold. His temperature is above normal morning and evening; varying from 100° to 102° F. in the evening; in the morning, 99° to 100° F.

He was ordered massage, and the cautery was used on either side of the angular curvature. He was also ordered cod-liver oil and milk-punch. A plaster jacket was applied soon after his admission, but as he fainted before the plaster could set, it had to be removed, and in two days a second jacket was applied. This could only be borne for three or four days, on account of interference with respiration; and it was removed on the second day. A third jacket was applied at the end of another week, and in this he was comfortable. The bedsore, however, continued to increase in size and depth.

On March 18th he was suspended by means of a padded leather chin and occipital piece from a bar of iron projecting over the head of his bed. This was placed high enough above the bed to allow him to sit upright upon the bed. He was able to bear the extension for nearly five minutes on the first day. On each subsequent day the time was extended, until he was able to bear the extension for half an hour twice a day. On April 17th, the plaster jacket having been removed on March 29th, ice and hot water were applied to the spine over the region of the curvature, for ten minutes four times each day—the ice and hot water being applied alternately; first the cold, followed by the heat.

May 14, he was placed in a chair, and extension made from a rod attached to the back of the chair and bent over the head. About this time he began to have slight power of motion of the toes; this was followed by power to flex the feet, and to flex the thighs.

June 25, fluid extract of ergot, twenty drops three times a day, was added to the treatment; and this was continued until July 31st.

July 23, the following note was made: Condition much improved; complains of no pain; can move legs, drawing up the knees lying on his back in bed; sensation is improved, but is not perfect; clonus is less, but still marked; knee-jerk still exaggerated; toe reflex still present. The application of heat and cold to the spine was continued until October 18th.

In August he was able to lift the feet from the floor as he sat on the chair. One of Kolbe's spinal apparatuses was applied on July 31st, and he has continued to wear this when sitting up ever since; it is removed when he is in bed.

In the middle of August he could walk a few steps in the wheel-crutch.

In October he began to walk about with crutches. He has continued progressively gaining strength in the legs, and is now able to walk about at pleasure, but has not yet been allowed to dispense with his crutches, although quite strong enough to do so.

He has gained in weight. There is no tenderness over the curvature, but there is no material change in its shape. The reflexes are all still exaggerated, but to a moderate extent; and the tremor of the legs is no longer excited by moving them vigorously.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 21, 1889.

THE PRESIDENT, WILLIAM GARDNER, M.D., IN THE CHAIR.

DR. SHEPHERD exhibited a patient on whom he had operated a year ago for the

RADICAL CURE OF HERNIA.

The man, a blacksmith by trade, was forty-five years of age, of intemperate habits and very stout. He had had a swelling in the left groin since boyhood, which always disappeared on lying down. It gradually increased in size and entered the scrotum. It now could only with difficulty be reduced. Two years before had received a severe blow on the scrotum with a bar of iron, from this time the tumor rapidly increased in size and became irreducible. Latterly the tumor has become so large and troublesome that he could not do his work, and with difficulty could wear large-sized trousers. The tumor in the scrotum was larger than a good-sized football. He was sent into hospital and kept in bed some time. Operation for the radical cure of the hernia was advised, and, the man having consented, the operation was performed on April 26, 1888.

An incision some eight inches long was made over the tumor and the sac reached. The sac was found to be very thin, and was with difficulty partially dissected out. Failing to reduce the hernia, the sac was opened. The sac contained all the large intestines with the exception of the cæcum and sections, and nearly all the small, besides a large mass of omentum. Several pounds of omentum were removed after ligature, and then an endeavor made to return the bowels. This was not easily accomplished, the abdominal cavity appearing too small to contain them. After manipulating the intestines for a considerable time without making much impression on the quantity outside the abdomen, the man was suspended by the feet. This enabled Dr. Shepherd to reduce the small intestines first, then the large. The whole time occupied was nearly two hours.

It was found that in reducing the large intestines, pushing them in a certain direction failed to diminish the quantity, but as soon as they were pushed in the opposite direction, they slipped in easily. When all the intestines were returned, the abdomen was as tight as a drum, and it seemed as if it would not have been possible to introduce an inch more of bowel. Having taken so much time in reducing the hernia, Dr. Shepherd decided that it was better to sacrifice the testicle of that side, and so complete the operation as soon as possible. The sac was cut off and the ends of the ligature passed through the abdominal walls, as suggested by Mr. Barker, of London, one through each pillar of the internal ring and then tied together; the canal, which, of course, was of large size, was then closed by two silk sutures which were passed through the conjoined tendon and Poupart's ligament, and the external wound closed with continuous silk suture.

The patient was in fairly good condition after the operation and quickly rallied. Next day there was some pain and tympanites. Small doses of salts were given frequently, and the bowels freely moved. The recovery of the patient was uninterrupted and without special incident. He remained in bed some six weeks after operation, when he was discharged with a sinus still unhealed at the point of drainage. After a few weeks more he returned to his work, at which he has been constantly engaged ever since. There has not been the slightest return of the hernia, but the fistulous opening has never completely closed, and some few days ago Dr. Shepherd removed one of the silk sutures from it.

Dr. Shepherd stated that he brought this case before the Society because of the special interest taken at the present time in this subject. The operation performed was a formidable one, and relieved the man from a very disagreeable tumor which had seemingly interfered with his occupation. The sacrifice of the testicle he did not regret, as he was convinced that in these large herniæ cure could be more readily accomplished if the spermatic cord were cut; the stump helped to close the internal opening. The fistulous opening, he thought, was no doubt due to the silk sutures; one had already come away, and when the other was discharged he had no doubt the fistula would heal.

Dr. Sutherland exhibited a patient on whom he had performed

LIGATURE OF THE COMMON CAROTID FOR ARTERIO-VENOUS ANEURISM.

The patient, a girl, aged twenty-four, was brought to the General Hospital on September 3, 1888, having been accidentally shot in the neck by an ordinary parlor rifle carrying a bullet the size of a pea. The bullet entered the neck midway between the symphysis and angle of the lower jaw on the left side, passed across the neck and was found under the skin two inches below the right mastoid process behind the sterno-mastoid. The right side of the neck was swollen and a distinct pulsation and thrill were felt in placing the hand over the upper carotid triangle. With the stethoscope a distinct bruit could be heard. The thrill and pulsation of the tumor gave one the idea that the affection was an arterio-venous aneurism. The pulsation was arrested by compressing the common carotid in the neck. The patient was kept quiet for a few days, and the tumor and pulsations increasing it was decided to throw a ligature around the right common carotid and then search for the wounded vessel. This was done, but failing to find the vessel, which appeared to be deep (probably the internal carotid), Dr. Sutherland determined temporarily to occlude the carotid by ligating it over a piece of drainage tube after the manner suggested by Mr. Treves, of London, and await results.

The patient did well for several days, but the ligature loosening, the pulsation in the aneurism returned, so the patient was again placed under ether and the carotid was tightened in its continuity above the omo-hyoid. The patient did well, the wound healing by first intention except at the point where the bone drain had been. After three weeks she was discharged from hospital with the swelling in her neck much decreased and with the aneurism cured. The fistulous opening remained until January 12th, when the ligature came away and then the opening rapidly closed.

The patient is at present perfectly well. Dr. Sutherland stated that with regard to the tying of the ligature over the rubber tube outside, it was a practice he would not repeat. Although it had the advantage of accustoming the brain to a lessened supply of blood, yet he considered that the retarded flow of blood in the main vessel might lead to a thrombus being formed in some of its anastomotic branches and so interfere afterward with the nutrition of the part. He preferred ligature of the carotid to temporary compression, as the former was much more certain and not more dangerous.

ESBACH'S METHOD OF DETERMINING PROTEIDS IN THE URINE.

DR. RUTTAN exhibited and explained Esbach's method of determining proteids in urine, and showed how it might easily be applied to ascertain the relative proportion of serum-albumin and serum-globulin in urine. He expressed surprise that this method, though over two years old, was not used more by physicians, as it was extremely easy of application and occupied little or no time. It was time that the unscientific and misleading statements which appear in the journals, regarding the qualitative relation of albumin in urine, were replaced by more accurate and reliable observations. Such statements as thirty or forty per cent. by volume of albumin conveyed no information whatever, as to the actual quantity of proteids, nor even of the relative proportion from one observation to the next.

Dr. Ruttan said that it was obvious that the volume of precipitated albumin depended on whether precipitated in flakes or in granules, and this again depends on the time it is boiled and the amount and nature of acid used; again, the specific gravity of the urine, the time elapsing before the observation is made, etc., all should be constant and should be stated, before it is possible by the old method to convey even an approximate idea of the actual amount of albumin in the sample of urine. Esbach's method, though not absolutely accurate, is more nearly so than any other clinical method and has the advantage of giving the actual proportion of albumin by weight in any given sample of urine. Dr. Ruttan also referred to Dr. Grainger Stewart's observations on the significance of the relative proportion of serum albumin and globulin in urine. These observations, though few in number, go to show that the globulin, if in excess or present alone, is significant of functional albuminuria.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of March 5, 1889.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

DR. CHARLES L. DANA reported two cases of

FOCAL LESIONS OF THE TEMPORO-SPHENOIDAL LOBE, WITH SYMPTOMS OF FORCED MOVEMENTS.

The first was a case of abscess of the right temporal lobe occurring in a woman of thirty-two years. It resulted from a fall on the head and developed slowly in the course of two years. The notable symptom, aside from headache and a hysterical mental state, was sudden forced movements causing the patient to fall back and to the right. She was continually falling out of bed on the right side, and would sometimes perform *manege* movements. She died suddenly. Autopsy showed an old circumscribed abscess of the third and fourth right temporal convolutions with a recent hemorrhage into the cavity, bursting into the lateral ventricle.

The second case was one of focal meningo-encephalitis causing deep and extensive softening of the second and third right temporal convolutions. The patient, a man of forty, was brought into the hospital in a condition of delirium. A history was obtained of an apoplectic stroke one year before. Since then he had had frequent attacks of dizziness and muscular twitchings during which he would fall always forward and to the right.

A third case of abscess of the right temporal lobe, recently reported in the *Provincial Medical Journal*, was cited, in which the patient frequently staggered to the right.

Physiologists found a number of parts of the brain, irritation of which caused forced movements—*e.g.*, the cortex cerebri, the basal ganglia, the cerebellar peduncles, etc. Pathologists had found in cases of forced movements, lesions chiefly in the cerebellar peduncle, especially the middle; but there were a few observations showing such disturbances from lesions of the parietal lobes. It was suggested that the temporal lobes contained representation of our sense of space and appreciation of changes in bodily position. It might be that the right lobe was especially concerned. There was some *à priori* probability that the vestibular or space-sense root of the eighth nerve and the cochlear or auditory root were connected with neighboring areas in the brain cortex. Anatomically it was known also that the temporo-occipital lobe was connected by a bundle of fibres with the pons nuclei and the cerebellum.

DR. GRAY said it was true that the auditory nerve subserved the senses of hearing and space, and it was quite true that deaf-mutes are never sea-sick, yet lesions of the temporal lobe thus far have produced only word-deafness. These were lesions of the first and second convolutions. We now know that the auditory nerve has connections with the cerebellum. Such profound disturbances as existed in Dr. Dana's cases are generally due to disease of the cerebellar peduncles or semicircular canals. Autopsies seem to have excluded cerebellar lesion, but no mention was made of any examination of the internal ear to see if the canals were normal. He referred to a case of his own with lesion of the temporal lobe with neither word-deafness nor loss of equilibrium. If Mr. Dana's conclusions were correct he had opened up a new field in brain pathology.

DR. FISHER described some of his recent experiments on dogs. Injury to the parietal or temporal lobes he had found to cause rotation to the side of the lesion quite as much as if the cerebellum were involved. These movements would last for several days. His researches therefore in an experimental direction would tend to corroborate Dr. Dana's clinical deductions. His operations were excision of the cortex in places, with more or less laceration.

DR. SACHS thought the most important fact that Dr. Dana had sought to establish was the termination of the vestibular branch of the nerve in the fourth and fifth temporal convolutions, whereas other authors had located all auditory terminations within the first and second temporal convolutions.

DR. DANA, in closing, stated that he had made a gross examination of the internal ear, but had found no sign of inflammatory change. The cortical area for the cochlear branch would remain the same, but the district for the vestibular branch he believed to lie lower down in the temporal lobe.

CORRESPONDENCE.

THE TREATMENT OF SPASMODIC CROUP.

To the Editor of The Medical News,

Sir: In perusing the very interesting article by Dr. Arthur V. Meigs, in your issue of March 23d, upon the subject of the "Treatment of Spasmodic Croup with Opium," it occurs to me to submit to you and your readers my own view of the treatment of this ubiquitous affection. I esteem the emetic as an indispensable introduction to the treatment of *all* cases. Almost invariably the last meal taken is found to be cast up undigested, and oftentimes food that has been taken twelve hours or more before the administration of the emetic. I regard this condition of the stomach as bearing a causative relation, by reflex action, to the laryngismus, and hence administer the emetic *at once*, whether or no the dyspnœa be urgent. Ipecac, I think, is the best emetic for this purpose. It is reliable and mild in its action. When emesis has ceased, I give from two to four grains of quinine, and as large a dose of the *fluid extract of gelsemium* as the age of the child will justify, generally from five to ten drops. The following morning I have the patient take a dose of castor-oil to open the bowels freely, and continue small doses of the gelsemium throughout the day—two drops every two hours. Another full dose of gelsemium and quinine on the second night at bedtime will be effectual in preventing any further paroxysm.

I find imperfect bowel action so commonly preceding these cases, and digestive incompetence or perversion accompanying them, that complete evacuation of the *primæ viæ* seems to me always to be rationally indicated. The administration of opium, as recommended by Dr. Meigs, may subdue the laryngismus by reducing the perceptive power of the nerve centres to morbid irritation, but at the same time the overloaded alimentary canal is rendered *more* inactive, and the digestive disturbance is ignored. These conditions of functional inactivity and perversion are my main points of attack. I regard the laryngismus as their reflex expression or effect upon the sensitive nervous system of the child, and find gelsemium and quinine adequate to allay it.

Yours truly, J. P. Reynolds.

1449 N. Thirteenth Street, Philada.,
March 30, 1889.

A BONY FALX CEREBRI.

To the Editor of The Medical News,

Sir: In perusing The News of March 23, 1889, I noticed the report of a very interesting case by Dr. Sneve of an osseous growth in the falx cerebri; which reminds me of, and causes me to report in brief, a similar and more interesting case, also one of acute ulcerative endocarditis, which came under my observation very recently.

Case I.—A negro, aged forty years, weight about one hundred and thirty pounds, not emaciated, a laborer, of temperate habits, came into the City Hospital, February 12, 1889, suffering from rheumatism of syphilitic origin as determined from the history of the case, cicatrices on glans penis, and enlargement of the epitrochlear and post-cervical lymphatic glands; pulse 120, temperature 101° F., complained of pain in left side and severe headache; he would lie on his back, eyes widely opened and pupils dilated, and head very much extended—his tongue was coated with a white fur. He was put on 10 gr. doses of iodide of potassium, three times a day; on the second day he manifested spasmodic action of the voluntary muscles, and on the third day he had decided convulsions at short intervals, and on the eve of the third day had stertorous breathing, frequent convulsions, coma and death.

Necropsy: Bones of cranium very thick—dura mater not adherent to the calvarium; the anterior two-thirds of the falx cerebri was ossified and thickened, the plate of bone resembling a scythe-blade, about four inches in length, one inch wide and one-half inch thick at the anterior extremity, and one-half inch wide and one-quarter inch thick at the posterior extremity; the superior border was thin and attached to the cerebral meninges, and the inferior border thin and free in the longitudinal fissure. The surfaces of this plate of bone were rough, presenting elevations and depressions and covered by a very thin layer of modified dura mater. The pia mater seemed thickened by an increase of new cells, or hyperplasia, and was closely adherent to the surface of the cerebrum, which was very hyperæmic and ill-developed; the third and lateral ventricles were partly filled with an amber-colored fluid. Liver and lungs very much congested; the spleen seemed smaller than normal—no microscopical examination of any of the parenchymatous organs was made. I ascribe the death of this man to syphilitic hyperplasia of the pia mater and not to the pressure of this bony falx.

Case II.—A negro, aged thirty-seven, average stature, a laborer, entered the Hospital, suffering from dyspnœa; his extremities and eyelids were œdematous; appetite good; pulse slow, forty per minute—full and compressible; no bruit could be heard on auscultation; temperature, 101° F. He was put on tr. digitalis, tr. iron, and phosphoric acid (dilute), and on the evening of the first day had a marked chill with rigors, followed by temperature of 104½° F.; on the morning of the second day he became delirious—urine was suppressed for thirty-six hours, the last passed contained no albumin or sugar; on the evening of the second day he became comatose and died.

Autopsy: Brain normal; liver and lungs very much congested; kidneys small and seemed contracted, but on section the medullary and cortical portions seemed normal to the naked eye—no microscopical examination was made; spleen considerably congested and pressed upon the superior surface of the left kidney and produced a marked flattening of that portion of the gland. The heart was dilated and hypertrophied; the endocardium and valve on the right side presented no signs of disease, but the endocardium of the superior and posterior portion of the right auricle presented an ulcer, circular in shape, and about one-half an inch in diameter; my finger was easily thrust through the auricular wall at this point. Beside this ulcer there were two other smaller ones near the left side of the auricle—the endocardium of the left ventricle showed no signs of disease; the ulcerative tissues were not examined microscopically for bacteria, nor was the blood.

Finding no other lesions than the above named, sufficient to cause death, and recalling the chills, rapid sinking, and these ulcers on the endocardium, I concluded that the patient died of acute ulcerative endocarditis, occurring not as a secondary disease to some other infectious one, but as a primary disease.

W. R. Jackson, M.D.,
City Hospital, Mobile, Ala.

March 23, 1889.

SUPERNUMERARY DIGITS.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of March 16, 1889, Dr. W. A. De Wolf Smith, of New Westminster, B.C., reports a case of supernumerary digits in which the variation seems to have originated with the female. He reports this case "in the hope that it may give some assistance in clearing up the question raised by Dr. T. Wesley Mills, in *The Canada Medical and Surgical Journal*, for May 1887." Prof. Mills there states that, according to Prof. Brooks, variations originate with the male, but himself gives a case which is, at least, an exception to the rule, and, as he says, is much against the theory. I beg leave to report the following cases of supernumerary digits which go further to prove that Prof. Brooks' theory does not always hold good.

CASE I.—In the spring of 1888 I was called to see a female negro baby, three weeks old, which had on either hand, opposite the metacarpo-phalangeal articulation, a supplementary finger attached by a pedicle of flesh and skin. The second and third phalanges and the nails of these *extra* fingers were fairly well developed. I removed, with a pair of blunt-pointed scissors, these appendages without any trouble. The parents of this child, who knew the histories of their families as far back as the grandparents, told me that there had been no other case of the kind in either family.

CASE II.—I had a friend who at birth had on each hand six fingers, and on each foot six toes. The supernumerary fingers were removed, but the toes were allowed to remain. These supplementary toes were thoroughly developed, having each a nail, three phalanges, a metatarsal bone and perfect articulations. He was the only member of his family, the history of which both on the paternal and the maternal side, was well known as far back as the grandparents, who had either supernumerary fingers or supernumerary toes. He had five sons, all of whom had normal hands and feet. In fact, he was the only member of this entire family who had an abnormity of any kind.

WILLIAM F. DREWRY, M.D.,
CENTRAL LUNATIC ASYLUM, PETERSBURG, VA.

AUTOMATIC AMBULATION.

IN THE NEWS of March 23d, a letter on the above subject was printed, from Dr. F. Donaldson, Jr., describing intelligibly that remarkable case of M. Charcot. A recent issue of the *London Medical Press* treats of this case and enters a caution that is worthy of quotation: "Extraordinary as it may seem, we have not to go far to find in ourselves the parallel [of this muscular automatism] for under the influence of a dominating train of thought, or strong emotion, perception is practically suspended, although there may be no outward evidence of its temporary abrogation. One is justified in preserving a certain scepticism in these matters short of scientific demonstration, as otherwise one might involuntarily connive at the spread of a pseudo-malady to which Parisian *changeurs* seem peculiarly subject, the principal symptom of which is a liability to take the train to Belgium without being conscious of the risk that their sudden disappearance, with the funds intrusted to their care, may be misinterpreted. Automatons of this kind are likely to prove very troublesome members of society, and unless they are enabled to foretell the advent of the attacks by the aura, it would be well to place them *nolens volens* under a suitable restraint."

The above admonition can, without much straining, be adapted to this country and climate by substituting Canada for Belgium and "boodlers" for the Parisian defaulters of whom the editor writes. It can hardly be expected that every automatic ambulator will fall into the hands of so keen an observer as Charcot and from him receive a certificate as a measure of safe-conduct, but it is desirable, at least, that whenever they may be discovered that each case of the kind shall be refused passport and, if practicable, be labelled "not to go out of the country," pending a thorough medical examination. W.

VERMONT AND SOUTH CAROLINA IN 1827.

To the Editor of THE MEDICAL NEWS,

SIR: I chanced this morning to take down a bound volume of pamphlets, pertaining to medical education, from one of which I wish to quote briefly. It is a tract of twelve pages, called "Proceedings of a Convention of Medical Delegates held at Northampton, in the State of Massachusetts, on the 20th day of June, 1827." The convention was the result of an effort on the part of the State Medical Society of Vermont to improve the status of medical education in the northern States; it laid the foundation of "an Association of Medical Societies and Institutions;" it made a code of rules calling for a high standard of qualifications; it was, in essence, a premature budding of the American Medical Association, limited to the north-eastern States—inclusive of New York—because of the then limited means of transportation; the American Medical Association came into being about nine years later, at a time when great relative improvements in travel had been acquired. I quote:

"It would have been highly gratifying if this convention could have been composed of delegates from all the States in the Union. But the blessings of our extended territory are not without inconveniences. It would seem nearly impossible that persons from such distances should be brought together with any convenience and continue in session long enough to consider all the local customs and circumstances which ought to influence the regulations to be adopted in such a case; nor would it be easy in any way to reconcile all the different habits and practices of the people of such distant territories as those which are occupied by our nation. Meanwhile we doubt not that the zeal in the cause of medical education is as great in the other States of the Union as in those which we represent. The Medical Institution of Charleston, S. C., has very honorably manifested its desire to elevate the profession in the only proper way, by making it more learned and more useful."

Among the eleven names of delegates who sign the report appear those of some of the veterans in the New England schools, such as R. D. Mussey, James Jackson, H. H. Childs, and Usher Parsons.

Thus it will be seen that while Vermont takes the initiative in the good cause in the north-eastern States, she is not able to steal the march on the "institutions" of the South; this word *institutions* was then used throughout New England in regard to colleges of medicine, and had no reference to associations or societies. No State other than South Carolina is mentioned by

name, in this report of proceedings, as being in earnest for the advancement of medical education; it unfortunately omits to specify what particular action, taken by the South Carolinian College, it was that won for the latter this honorable mention.

The convention ordered the printing of an edition of five thousand copies of these *Proceedings*. This was done at Boston, in 1827, under the eye of a committee of which Drs. Warren and Jackson were members. This pamphlet is sufficiently rare to have escaped inclusion in the Library of the Surgeon-General—at least, the volumes of the *Index-Catalogue*, at my command, have not yielded it to my search. Yours, with respect,

ALBEMARLE.

OBITUARY.

ROBERT PALMER HOWARD, M.D.

DR. ROBERT PALMER HOWARD, Prof. of Medicine and Dean of the Medical Faculty in McGill University, whose death was noticed in our last issue, was born in Montreal, January 12, 1823. He graduated in medicine at Montreal in 1848, and then studied in Dublin, London, Edinburgh, and Paris. In Dublin, he had the advantage of a prolonged course of instruction under Drs. Graves and Stokes, from whom he probably acquired that enthusiasm in the study of clinical medicine which distinguished him throughout his long career. He returned to Montreal in the latter part of 1849, and at once entered upon practice. In the early part of his career he was, for several years, connected with the St. Lawrence School of Medicine, an institution which had but a short existence. In 1852, he became one of the Demonstrators of Anatomy; in 1854, Prof. of Medical Jurisprudence; in 1856, Prof. of Clinical Medicine; in 1860, Prof. of Medicine in the University.

In 1882, on the death of Dr. Campbell, he became Dean of the Medical Faculty. For twenty-four years he was physician to the Montreal General Hospital, and served as Secretary to the Corporation. He held very many positions of honor and trust in the profession and in the community. For nearly thirty years he was one of the Governors of the College of Physicians and Surgeons of the Province of Quebec, and had been President of the same. He was President of the Canada Medical Association and of the Medico-Chirurgical Society of Montreal.

His contributions to medical literature were very numerous, and are to be found, chiefly, in the *British-American Journal*, in the *Montreal Medical Chronicle*, in the *Canada Medical and Surgical Journal*, and in *The American Journal of the Medical Sciences*. His writings upon phthisis have been numerous and valuable, and he was among those who upheld the unity of this disease at a time when Niemeyer's views were universally prevalent. His paper upon pernicious anæmia, read before the International Medical Congress at Philadelphia in 1876, was one of the earliest and most valuable contributions on this subject. His latest communications were upon hepatic cirrhosis in children and ophthalmoplegia externa.

As a teacher of medicine for thirty-three years, Dr. Howard enjoyed a unique reputation in his own country. To him was due, in great part, the development of that admirable and systematic plan of clinical instruction which has prevailed for so long in the Montreal General Hospital. Painstaking, logical, systematic, thoroughly versed in morbid anatomy, he was not only a model instructor, but he had that earnestness which at once commands the respect of, and affords the greatest stimulus to, the student. His work in connection with the development of higher medical education in Canada was consistent and progressive. For years he labored to introduce into the Dominion a medical bill which should require a minimum standard for practitioners in all the Provinces. This was found to be impracticable, and, of late years, his energies have been directed to the strengthening and advancement of the Medical Board of the Province of Quebec.

His fatal illness overtook him in the full tide of professional and college work. On Saturday evening, March 16th, he was taken with a heavy chill consequent upon exposure; on Tuesday, the 19th, signs of pneumonia developed, which increased rapidly and proved fatal on Thursday morning, March 28th.

NEWS ITEMS.

An International Congress of Therapeutics and Materia Medica will be held at Paris from August 1 to 5, 1889, in the hall of the Sociétés savantes, No. 28, Rue Serpente. All physicians, pharmacists and veterinary surgeons, sending in their names and paying the assessment of ten francs (two dollars) will be permitted to take part. The Congress will be divided into two sections: one on therapeutics and the other on materia medica.

The committee of organization is composed as follows: Drs. Moutard-Martin, president; Dujardin-Beaumetz, vice-president; Constantine Paul, secretary-general; P. G. Bardet, assistant secretary-general; Labbé, secretary of the section of therapeutics; R. Blondel, secretary of the section of materia medica.

The following subjects will be discussed:

1. The antithermic analysis. M. Dujardin-Beaumetz, reporter.
2. The antiseptics proper for each species of pathogenic microbe. M. Constantin Paul, reporter.
3. Heart tonics. M. Bucquoy, reporter.
4. The new drugs of vegetable origin recently introduced in therapeutics. M. Planchon, reporter.
5. Unification of weights and measures used in formulas; the advantages of an international pharmacopœia. M. Shaer, of Zurich, reporter.

An exhibition of drugs will be held during the session of the Congress in the same building and under the direction of Drs. Adrian and Blondel.

All communications should be addressed to Dr. Bardet, Assistant Secretary-General of the Committee of Organization, No. 119 bis, Rue Nôtre-Dame-des-Champs, Paris, France.

The Royal Victoria Hospital, Montreal.—The drawings for the new Royal Victoria Hospital, Montreal, Canada, have been received trom London. The central, or main, building consists of four blocks, the front one, on either side of the entrance hall, being devoted to the nurses' apartments, and those of the lady superintendent and matron, together with the general offices. The block

behind this consists of a building, the shape of a Latin cross, devoted to the clinical department, with a separate entrance for the students. Behind this again are two other blocks, containing three theatres and the mortuary, and at the rear of these, but perfectly isolated from them, is the ice house. The wing on the left hand, or western side, consists of three blocks, each four stories high, with, between them, small buildings containing the staircases, each ward communicating therewith by means of covered galleries. The accommodation to be provided is—surgical patients, about 90 beds; medical patients, about 180; private paying patients, about 20; total, 290 beds. Infectious hospital, about 35; total, 348.

At the rear of the buildings is the infectious hospital, conducted upon the hut system. The whole building will cost about half a million dollars.—*Boston Med. and Surg. Journal*, April 4, 1889.

The Operating-room at the Hotel Dieu, in Lyons.—The new operating-room at the Hôtel Dieu, in Lyons, which has recently been opened for use, would appear from a lecture delivered by Prof. A. Poncet, who has charge of the teaching in operative surgery, to be one of the most completely aseptic operating-rooms to be found. M. Poncet has had it constructed according to designs of his own, elaborated after a visit to many of the hospitals in England, France, Germany, Austria, and Switzerland.

The two objects he set before himself were the prevention of infection by means of air or through contact. It is about thirty feet in length by twenty feet in breadth, the height being about twenty-four feet. As its situation beneath the wards rendered a skylight impossible, the light is admitted by one immense window, the eight panes of which are made to open. Artificial light, when required, is obtained from a Wenham gas-lamp, which can be lowered to within about seven feet of the ground. The walls are covered to the height of five feet with glass, forming a dado; above that with perfectly smooth stucco of a rose-gray tint. All the angles are rounded. To the walls are fixed nickelled brackets supporting shelves of plate glass, which, however, do not come within half an inch of the wall; on these shelves stand vessels containing antiseptic solutions, and ingeniously constructed metal receptacles for dressings. The ceiling is in the form of a dome, and the floor, which is of cement, slopes slightly to an aperture in the centre leading to a carefully constructed drain. The surface is channelled, and is washed down daily, also once a week with carbolized water.

The few chairs and benches are made of bronzed iron; the tables are made with glass tops and metal frames, and are provided with casters. The operating-table is entirely free from the complicated mechanism frequently seen, and the top, which is of glass, is, like the floor, made to slope toward the centre, where there is an aperture communicating with a drainage-tube. The mattress is covered with mackintosh, and is perforated so as to allow of drainage. When the patient requires to be propped up, pillows and cushions covered with mackintosh are used, to the entire exclusion of mechanism. Ingenious arrangements are made for the reception of the anæsthetist's and the surgeon's appliances, and a second table is provided for operations requiring the operator to stand between the patient's thighs.

The instruments, whose handles are specially made with a view to prevent any difficulty in cleaning, are all washed in glycerine at the temperature of 120° C., and then kept in carbolic solution.—*Lancet*, March 23, 1889.

In Memoriam.—At a meeting of the Medical Staff of the Philadelphia Hospital, held April 1, 1889, the following was adopted:

WHEREAS another vacancy on our Staff has been created by death;

Resolved: That by the death of DR. EDWARD T. BRUEN, who was an indefatigable worker, a clear thinker, and an able writer, the interests of scientific medicine have suffered severe loss.

Resolved: That while this loss will be felt by every medical practitioner, it is but slight compared with that experienced by numerous personal friends, to whom he had endeared himself by many amiable qualities.

Resolved: That the sincerest sympathy of the Staff of this hospital be tendered to the family of their late colleague.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 2 TO APRIL 8, 1889.

ALDEN, CHARLES H., *Lieutenant-Colonel and Surgeon* (U. S. Army).—Detailed as a member of the Army Medical Board, to meet in New York City, May 1, 1889.—Par. 5, *S. O. 74, A. G. O.*, March 30, 1889.

MCELDERNEY, HENRY, *Major and Surgeon* (U. S. Army).—Detailed as a member of the Army Medical Board, to meet in New York City, May 1, 1889.—Par. 5, *S. O. 74, A. G. O.*, March 30, 1889.

MATTHEWS, WASHINGTON, *Captain and Assistant Surgeon* (U. S. Army).—Detailed as a member of the Army Medical Board, to meet in New York City, May 1, 1889.—Par. 5, *S. O 74, A. G. O.*, March 30, 1889.

MERRILL, JAMES C., *Captain and Assistant Surgeon* (U. S. Army).—Detailed as a member of the Army Medical Board, to meet in New York City, May 1, 1889.—Par. 5, *S. O. 74, A. G. O.*, March 30, 1889.

By direction of the Secretary of War, JOSEPH R. GIBSON, *Major and Surgeon*, is relieved from duty at Fort Lyon, Colorado, and ordered to Fort Sheridan, Illinois.—Par. 11, *S. O. 77, A. G. O., Washington*, April 3, 1889.

By direction of the Secretary of War, A. H. APPEL, *Captain and Assistant Surgeon*, is relieved from duty at Fort Sheridan, Illinois, and ordered to duty at Fort D. A. Russell, Wyoming Territory.—Par. 11, *S. O. 77, A. G. O., Washington*, April 3, 1889.

By direction of the Secretary of War, GEORGE H. TORNEY, *Captain and Assistant Surgeon*, is relieved from duty at Fort Monroe, Virginia, and ordered for duty to Fort Brown, Texas.—Par. 11, *S. O. 77, A. G. O., Washington*, April 3, 1889.

By direction of the Secretary of War, SAMUEL Q. ROBINSON, *Captain and Assistant Surgeon*, is relieved from duty at Fort Brown, Texas, and ordered to Fort Hamilton, New York, for duty.—Par. 11, *S. O. 77, A. G. O., Washington*, April 3, 1889.

By direction of the Secretary of War, leave of absence for six months is granted to CHARLES S. BLACK, *Captain and Assistant Surgeon*, to take effect after the arrival of Acting Assistant Surgeon Robert P. Finley at Fort Sidney, Nebraska.—Par. 14, *S. O. 18, A G. O, Washington*, April 4, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING APRIL 6, 1889.

MARSTELLER, E. H., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Adams."

STITT, E. H. (of South Carolina).—Commissioned Assistant Surgeon, U. S. Navy.

GATES, M. F. (of Pennsylvania).—Commissioned Assistant Surgeon, U. S. Navy.

BOYD, J. C., *Surgeon.*—Detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the "Yorktown."

GATES, M. F., *Assistant Surgeon.*—Ordered to the Navy Yard, Philadelphia.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIV. SATURDAY, APRIL 20, 1889. NO. 16.

ORIGINAL LECTURES.

ON PHAGOCYTES.

An Address
before the Alumni Association of Bellevue Hospital, New York, delivered April 3, 1889.

BY WILLIAM OSLER, M.D.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

(Concluded from page 396.)

THE theory elaborated by Metschnikoff had been hinted at by many previous observers, but to him is undoubtedly due the credit of bringing it into prominence, and of doing in connection with it a very large amount of interesting work. It must be allowed that he came to his task well prepared. Many of us can look back with pleasure to his brilliant investigations upon the intracellular digestion in the Planariæ and in Sponges, carried on largely at the Naples Marine Station; investigations the truth of which, so far as I know, has not been controverted. Following these studies, directly in the same line, was his interesting research into the method of the absorption of the tail of the tadpole, already referred to, in which he appears to have demonstrated that the atrophy of this organ results in reality from the active removal of the fragments of the tissue by leucocytes.

So far the work was biological, and had no direct bearing upon the phenomena of disease further than that, in the latter illustration, it bore out the well-known fact of the absorption by leucocytes of foreign bodies placed within the tissues. In 1884, in the 96th vol. of Virchow's *Archiv*, he published a paper[1] which arrested the immediate attention of students in parasitology. It is now too old a story to narrate at length; it will be sufficient to remark that in the daphnia, the common water-flea of the aquarium, he had studied the relation of the leucocytes to a fungus with which these insects are prone to be infected. The phagocytes attack the fungi which enter the body cavity from the intestines, and practically eat them, enclosing them in protoplasm. Where one cell is insufficient, several combine to enclose the spores in large plasmodia-like aggregations—giant-cells. If the invasion was in such large numbers, and the activity of the fungus so great that conidia were formed, the resisting forces were insufficient, victory remained with the enemy, which meant the death of the daphnia. Of 100 insects studied, 73 became infected, of which 59 recovered and 14 died.

Following this line, Metschnikoff proceeded to study the relation of leucocytes to anthrax bacilli, to the micro-organisms of erysipelas, and to various other affections. He likened specific inflammation to a warfare in which the invading army is represented by microörganisms, and the resisting forces by the leucocytes. Even in details the analogy was maintained. Notice of the arrival of the invaders was telegraphed, so to speak, by the vaso-motor nerves; the line of communication, the avenues of mobilization, were represented by the bloodvessels. The aim of the invader is to secure the territory, to multiply rapidly, to live at the expense of his host, and to manufacture and circulate substances injurious to him. The aim of the resisting forces is to encircle the enemy, inclose him, digest him, and render him inert in battle. Many phagocytes die in the process, and, if in large numbers, the heaps of the slain represent pus; an abscess is a battleground densely packed with dead bodies. If victory remains with the invaders the organisms pervade the affected part, multiply, and induce conditions incompatible with the life of the part, or perhaps with the life of the entire organism. If the battle is with the host, the parasites are destroyed, perhaps not without loss, but the normal state is gradually restored. Practically, on this theory each organism is regarded as possessing a standing army composed of mesoblastic cells, capable of rapid reproduction and rapid concentration, one important function of which is to protect the organism against destructive agencies invading it from without. Certainly a most attractive theory, fully deserving the attention which it has aroused. On the one hand widely accepted, on the other bitterly assailed, the question is as yet far from settled, and to the position in which it stands I propose briefly to refer, and then to offer some results of my own observations upon a disease in which special facilities exist for the study of the problem.

Metschnikoff has studied a number of diseases, erysipelas, anthrax, relapsing fever, and tuberculosis, with a view of finding facts in support of this theory, and his communications within the past four years have been numerous and elaborate.[1] They have been so widely abstracted and so often referred to that I shall not occupy your time by entering into details, but will briefly indicate the chief points upon which he lays special stress in these different affections, and note certain of the observations which have been made by other workers.

In erysipelas the cocci are attacked first by the leucocytes filling the lymph spaces, which rapidly proliferate and actively eat the microörganisms. Not alone do the colorless corpuscles act as phagocytes, but the fixed connective tissue cells assist in an important manner. In cases of recovery he found that behind the advancing cocci the leucocytes were crowded with parasites which showed evidences of digestion and destruction. The connective-tissue cells do not appear to attack the cocci, but are chiefly concerned with the absorption of the inflammatory exudate, even taking up the leucocytes which have died. In fatal cases there was enormous development of micrococci, the majority of which lay free in the tissues not enclosed in the phagocytes. Inoc-

[1] Ueber eine Sposspilzkrankheit der Daphnien.

[1] Published chiefly in Virchow's Archiv.

ulations with erysipelas cocci in white rats confirm these observations made in man. The leucocytes attack the parasites, which undergo rapid degeneration in the protoplasm. The larger connective tissue cells, macrophages, did not attack the cocci. Metschnikoff recommends experiments upon these animals with the erysipelas cocci as an especially favorable field in which to study the struggle between the cells and bacteria.

In anthrax Metschnikoff has studied the relation of the phagocytes to bacilli introduced into frogs, which, as is well known, possess immunity at the ordinary temperature, but succumb when the temperature is raised. A graft of a piece of anthrax tissue under the skin of a frog is within from fifteen to twenty hours surrounded by leucocytes, which take up many bacilli. According to Koch, they may grow inside the cells and even burst them, but Metschnikoff holds that the anthrax filaments do not develop within the cell, but are gradually destroyed by them, and that this is the reason why the frog at an ordinary temperature recovers. In the heated frog the bacilli rapidly develop and the efforts of the leucocytes proving insufficient, the animal dies; not, it is asserted, from any inactivity on the part of the leucocytes but because the bacilli secrete a liquid which protects them from attack.

In Baumgarten's criticism[1] he relates some experiments with the anthrax bacilli which directly antagonize these observations. Pigeons do not die when inoculated with anthrax, and he found that the bacilli injected degenerate in precisely the same way in these creatures as when in distilled water; only here and there did the leucocytes contain the rods.

He found that in frogs, though the bacilli are eaten by the leucocytes inversely to the degree of heat to which the animal is exposed, there is never total destruction of the bacilli by the phagocytes.

Hess[2] has performed experiments which bear directly upon these points. Anthrax cultures in Zeigler's glass chamber, inserted beneath the skin in animals not very susceptible to the disease, as dogs and birds, showed active migration of the leucocytes into the chamber which appear to attack the bacilli and to destroy them. These very striking experiments certainly indicate what, of course, is well known, a high degree of activity on the part of the leucocytes, finding their way, as they do, into the chamber closed at all points except one narrow orifice. But, as Hess says, it is a question whether the disintegration in the cells necessarily means destruction by the cells.

In relapsing fever Metschnikoff states that the spirilli are not attacked by the leucocytes in the blood but are destroyed only in the spleen. In the artificially produced disease in monkeys, he finds abundant inclusion of the spirilli in the phagocytes of the spleen during the period of the rise in temperature before the crisis. This, however, may simply mean that the spirilli, most of which gradually disappear from the blood at the crisis, have lived their life and are about to die, and in this state are taken up by the normal splenic phagocytes, just as are the effete red blood-corpuscles. He explains the recurrence of the second, or even of the third, attack of the fever by supposing that certain spirilli remain alive after the crisis and start afresh a new generation, which is not retarded in its growth, as the phagocytes are too busy in digesting the spirilli which they had eaten during the former attack.

An interesting study of phagocycosis has been made by Laehr, a pupil of Ribbert,[1] who has studied the effect of injection into the lungs of rabbits, through the trachea, of staphylococcus pyogenes aureus. Within a few hours the cocci are almost all to be seen within the alveolar epithelium, and in the leucocytes, which latter, in the course of a few days, disappear from the alveoli and pass into the bronchi. Meanwhile, the alveolar epithelium proliferates, causing a catarrhal inflammation. Within the first week the cells contain many cocci, which gradually become less numerous, and in the second week entirely disappear. He looks upon this as a confirmation of Metschnikoff's views.

In a second investigation, Hess[2] has studied, in rabbits and in cats, the relation of the leucocytes to the staphylococcus aureus inoculated in the cornea. At first there is marked increase, which leads to an acute inflammatory process in the neighborhood of the cocci. The leucocytes increase rapidly, and within two or three days almost all of the cocci are within cells. In cases which recover, by the sixth day no cocci are found. When the process does not result in healing, the phagocytosis is slight.

Baumgarten states[3] that experiments made in his laboratory do not confirm these results of Hess.

Ribbert, in his study on the destruction of pathogenic bacteria in the body, supports Metschnikoff's[4] views. He found, after injection of the spores of Aspergillus and Mucor, that they collected in the organs of the experimental animals, particularly in the liver and lungs, and that within a few hours after injection they were surrounded by leucocytes, which either completely prevented or restricted the growth of the germs. Injections in very large quantities might not be sufficient to hinder the growth of the parasites, and the animal died. In the lungs and in the liver the phagocytes are much more active than in the kidneys. Precisely similar occurrences were found where the spores were injected into the anterior chamber, and it is worthy of note that he found on the anterior surface of the iris, in the neighborhood of the pupil, the phagocytes much more active and the disintegration of the spores much more marked than in the posterior part of the iris in contact with the lens. Ribbert holds that the destructive influence of the leucocytes is exercised chiefly by their preventing access of nourishment to the spores (particularly of oxygen), and in favoring, also, an accumulation about them of destructive metabolic products. He regards the fixed connective-tissue cells of the liver, and the giant cells which develop in the liver and in the lungs, as the most important agents in the final destruction of the spores.

As we might suppose, the views of Metschnikoff have met with sharp criticism in many quarters, and from no one more ably and at greater length than from Baumgarten.[5] While not denying that the leucocytes eat the

[1] Zeitschrift f. klin. Medicin, Bd. xv. Hft. 1 u. 2.
[2] Virchow, Archiv, Bd. 109.

[1] Abstracted by Bitter; Zeitschrift f. Hygiene, Bd. 4.
[2] Virchow's Archiv, Bd. 110.
[3] Jahresbericht, Bd. 3.
[4] Abstracted by Bitter; Zeitschrift für Hygiene, Bd. 4.
[5] Loc. cit.

bacteria, he claims that the process is by no means universal, and is carried on so unequally, that we can scarcely speak of an active warfare waged against the parasites.

As a specially weak point, he alludes to the powerlessness of the phagocytes in the Daphnia disease so soon as the conidia are formed from the spores.

In relapsing fever, the freedom from attack which the spirilli enjoy in the blood is urged strongly against the phagocytic theory. The fact that spirilli are found in a number of cells of the spleen toward the crisis simply means that the phagocytes of this organ behave to them as to other foreign bodies. Probably, too, the spirilli begin at this time to lose their vitality, as is shown by their less active movements, and are then readily taken up by the splenic leucocytes in a manner precisely similar to effete blood corpuscles.

In erysipelas, Baumgarten criticises the position in which Metschnikoff finds the parasites, namely, in the second zone, behind the advancing cocci, as conclusively showing that they are not fighters of the battle—not, as he expresses it, "the heroes of the day, but the hyenas of the field."

The observations of Christmas-Derkinck-Holmfeld[1] are also directly opposed to the theory of phagocytosis. He finds in anthrax experiments that very few of the bacilli are taken up by the leucocytes. In rats they degenerate within two or three days after inoculation, and for the most part outside of the cells. He holds that pus formation is a conservative reaction against the penetration of the bacterial germs, but that the neutralization of the action of microörganisms depends much more on the chemico-biological relations of the tissues than on any property of the cells to destroy them by inclusion. His view, in fact, approaches that of Ribbert already referred to, in ascribing the limitation of bacterial growth to nutritive changes, particularly to the restriction of oxygen, rather than to any phagocytic action of the cells.

In Flügge's laboratory, observations have been made by Bitter and by Nuttall,[2] of San Francisco, which directly contradict those of Metschnikoff. Nuttall's elaborate experiments appear to show conclusively that the destruction of the bacilli in the living body is not effected by the phagocytic action alone.

And, lastly, in tuberculosis, the question of the relation of the cells to the bacilli is being carefully studied. In his recent paper on the subject,[3] Metschnikoff claims that the degeneration of the bacilli, which has long been known to occur within the giant cells, results directly from their phagocytic action, and is not a natural decay. Baumgarten, on the other hand, regards the relation of the giant cells to the bacilli as one of the strongest evidences against the theory of phagocytosis.

With the relations of phagocytes to bacteria, I have had so little practical experience that I hesitate to express any positive conviction on the question, but I have, for nearly three years, been working at a problem identical in all its relations, but in which the parasitic bodies belong to a higher class of organisms. I refer to malaria, and to the hæmatozoa which occur in the blood of this disease. A sceptical attitude in these days of hasty observation and of still hastier conclusions is peculiarly appropriate. I complain of no one who, without ample opportunities for personal study, claims the right to question the full significance of Laveran's important discoveries. Perhaps better than any one else, I am in a position to extend sympathy to the sceptic, as, until ample material came to hand in 1886, I was among those who looked upon the work of Laveran with extreme incredulity. The corroboration in almost every detail which his studies have received during the past three years is in all respects remarkable. Working as he did, alone in Algiers, under circumstances the reverse of favorable, without proper laboratory equipment, without the stimulus to be found in the association of men in large cities, it is not only in the highest degree creditable, but most encouraging, that an army surgeon, actively engaged in the duties pertaining to his battalion, could accomplish so thorough a piece of work, requiring but little subsequent correction, and receiving at all hands ample confirmation.

Richard, in France; Marchiafava and Celli, Golgi and his pupils, in Italy; Sternberg, Councilman, James, Shattuck, and myself, in this country; and Vandyke Carter, in India, working far apart, have all practically confirmed, with minor modifications and amplifications, Laveran's observations.

While the invariable association of these parasites with malaria would appear to be settled, their precise morphological relations are still a matter of discussion. I have urged, from their resemblance to other hæmatozoa, that they should be classed with the genus of Hæmatomonas (Metrophanow), which includes all forms of monads parasitic in the blood, of which a considerable number is known among the lower animals. Briefly, to refresh your memory, I may refer to the forms which occur in ordinary malaria. In the acute cases there exist in the red blood-corpuscles hyaline and pigmented bodies which undergo amœboid changes, and which gradually destroy the corpuscles, converting the hæmoglobin into a black pigment. Under certain circumstances, more particularly during the paroxysms, these bodies increase in size, and undergo segmentation, breaking up into a number of small free spherical bodies. In smaller numbers in the blood, but more constantly in the spleen, are the remarkable flagellate organisms. Lastly, in more chronic cases there are the still more extraordinary crescentic forms. Practically, the unanimity which exists in the statements of the observers above named regarding these bodies, places the question of their existence in malaria (and I may say, based upon the number of negative observations, in malaria only) beyond any reasonable doubt.

That they truly constitute the actual germ of the disease is, however, a point upon which opinions may differ. The constancy of their presence, their absence in other individuals in malarial regions, their abundance in the graver forms of disease, the destructive influence they exert upon the blood-corpuscles, are urged by Lavaran in evidence of their pathogenic nature.

However this may be, the question which here concerns us relates to the relation between the phagocytes and these bodies. Surely one might suppose that here, if anywhere, the theory of phagocytosis might receive

[1] Fortschritte der Medicin, 1887.

[2] Archiv für Hygiene, Bd. iv. I would particularly recommend the summary of Bitter's to those wishing further details, and for a striking series of experiments, the paper of Nuttall's.

[3] Virchow's Archiv, Bd. 113.

confirmation or rebuttal. What but phagocytes are the amœboid forms of these parasites which exist in the red blood-corpuscles, gradually destroying the stroma and the hæmoglobin until nothing but a shell remains? Here, indeed, are foemen worthy of the steel, or, rather, of the plasma, of the leucocytes. What, then, are the facts? How far can we say that in the blood in malaria, the seat most assuredly of the chief pathological changes, in acute cases, that there are evidences of a struggle between the phagocytes and the hæmatozoa. It has long been known that the leucocytes in this disease (particularly in chronic cases) contain pigment granules. There is no other affection in which melanæmia is so constant a feature, though it is now and then met with in other conditions. The leucocytes obtain the pigment either in the blood itself, or in the liver, spleen, or marrow, where the red corpuscles undergo their final destructive changes. In an examination of nearly one hundred and fifty cases of all forms of malarial affections, I have looked carefully at this point with a view of determining the exact mode in which the leucocytes obtain their pigment, and in my observations of the past two years the question of their relation to the various forms of the hæmatozoa has engaged my special attention. It may be remarked, in the first place, that there is certainly an increase in the number of white blood-corpuscles, an increase not associated, so far as I know, with any special change in the character of these bodies.

The result of my work in this direction may be stated in a few words. In the blood, at least, there is very slight evidence of the existence of phagocytosis. Here and there, it is true, we meet with leucocytes which have included the amœboid forms of the parasite, either free or still surrounded with the shell of a red blood-corpuscle. I have but three or four sketches in a whole series illustrating this fact. Occasionally a crescent may be seen within the white blood-corpuscle, more frequently the smaller free bodies which result from the segmentation. I have in my paper on this subject, given a sketch of a leucocyte which was watched for an hour and one-half and had included one pigment body, and was about to take a second, behaving identically though more deliberately than its great prototype, the pond amœboid. I confess myself disappointed in this respect. It may be urged that in a blood drop after withdrawal, the conditions are not favorable for study. But the absence of any great number of leucocytes containing parasites in a comparatively unaltered state, shows that certainly in the circulating blood the leucocytes do not actively attack and eat the parasites. More probably, I think, they pick up the pigment granule after the disintegration of the parasite, or in such regions of the circulation as the spleen or the bone marrow where the conditions are more favorable to phagocytic action. Even on the warm stage with the leucocytes displaying for hours amœboid movements, and in specimens which contained "foes" innumerable, it was exceptional to see evidence of active warfare.

It is, of course, more difficult to obtain evidence of the relation of the supposed contestants in the spleen, liver, and marrow, the organs in which regressive and progressive blood changes are constantly going on. I have not myself practised puncture of the spleen in these cases, as has been done extensively by Councilman. Fatal cases of malaria are not now very common. I have only had opportunities of examining two, both of chronic paludal cachexia, the result of prolonged exposure in Panama. One, an old man, admitted under my colleague, Dr. Musser, whose blood presented many of the characteristic forms; the other, a profoundly anæmic man, with a greatly enlarged spleen, but in whose blood very few of the parasites were found. In both instances the liver, spleen, and bone marrow showed charrcteristic melanotic changes. In the spleen the pigment in various shades, from brown to deep black, was chiefly in the thickened trabecular tissues and about the vessels. Teased portions showed:

(1) Large numbers of leucocytes containing brownish-black pigment grains. A few of the leucocytes contained the small amœboid forms which had been noticed to be very abundant during life.

(2) Larger cells, containing red blood-corpuscles in all stages of degeneration. These cells were of various sizes, and contained a variable number of corpuscles, from eight to ten, or even more. Some of the red corpuscles contained amœboid parasites, but by far the larger portion of them presented the usual appearance met with in cells of this character in the spleen.

(3) Large, irregular, flattened cells, probably derived from the epithelium of the spleen capillaries, which contained granular black pigment, and occasionally red blood-corpuscles.

(4) Spindle or branch cells of the reticular tissue enclosing brownish or black pigment grains.

(5) Free pigment.

Practically the condition was similar, though more extensive in degree, to that met with in this organ and in other febrile states associated with extensive blood destruction. I really could not say that the splenic phagocytes exercised any selective power in picking out for attack those corpuscles which contained parasites or crescentic forms, which in one of these cases existed in considerable numbers. The bone marrow in both cases presented microscopic changes characteristic of the lymphoid tissue, and had a grayish-brown color, due to excess of pigment. There were in it in large numbers marrow cells and ordinary leucocytes containing irregular pigment, and occasionally free amœboid forms of the parasites. The cells containing red blood-corpuscles were very abundant, but here, as in the spleen, it was particularly noted that the red corpuscles not containing the parasites were as frequently, or even more frequently, enclosed in the cells. In the liver the pigment existed in three elements.

(1) In leucocytes, which seemed numerous in the lobular capillaries, particularly at the periphery.

(2) In the walls of the capillaries, in all probability in the endothelial cells.

(3) In the stroma cells, particularly of the interlobular tissue about the portal canals, where in places it was sufficiently abundant to cause ordinary diffuse pigmentation, a part of which was due to grains lying free in the interstices of the tissue.

Metschnikoff states that in malaria the parasites are attacked chiefly in the spleen and the liver by the larger phagocytes existing in these organs, and to a much less extent by the leucocytes in the circulating blood.

We see, then, in malaria very little evidence in the blood favoring a theory of phagocytosis; certainly no such campaigning on the part of the leucocytes as might

be expected from the presence, in such numbers, of foes so destructive to the red corpuscles. In the spleen, bone marrow, and liver, the organs in which the dead or dying blood-disks are normally cremated, to use Weigert's expression, we have, as might be expected, an activity proportionate to the increased amount of material to be consumed, but scarcely such heightened phagocytic action as would indicate, on the part of the leucocytes, an aggressive warfare.

Into the interesting theory that to the action of phagocytes is due the immunity against certain diseases or against a second attack, I cannot now enter. In the present unsettled state of our knowledge it would be premature.

To conclude: While phagocytosis is a widespread and important physiological process throughout the animal kingdom, and while it undoubtedly plays a most important part in many pathological conditions, the question of an active destructive warfare waged by the body cells against the microörganisms of disease must still be considered an open one.

ORIGINAL ARTICLES.

THE EFFICACY OF FILTERS AND OTHER MEANS EMPLOYED TO PURIFY DRINKING-WATER.

A Bacteriological Study.[1]

By CHARLES G. CURRIER, M.D.,
of New York.

Water, even after having been exposed to various chances of contamination, is very generally drunk as it is received from lakes or rivers, wells or springs, tanks or hydrants; and, despite the most disinterested warnings, people are not ready enough to believe that clear, sparkling water may at times be the most harmful of beverages; that it can carry with it, and introduce into the systems of a portion at least of those who drink it, the immediate causes of various impairments of health. Polluted water may be agreeable to the taste and have no visible sediment, yet cause many deaths. Such water the unskilled are slow to suspect, and but for the advance in sanitary science and the warnings conveyed by those familiar with hygienic studies, pure supplies of drinking-water in cities would be much more of a rarity than they are.

At the Hygienic Congress in Vienna, in 1887, M. Brouardel stated that he knew of over sixty epidemics of typhoid fever which had been induced by the drinking of infected water.[2] From typhoid fever thousands of deaths occur every year; and, although scientific physicians are constantly urging these facts, it seems to be necessary that the danger present itself in the form of an epidemic before the people fully realize the immense harm which may result from impure drinking water. The epidemic which ravaged Plymouth,[1] in Pennsylvania, four years ago, attracted great attention at the time, but the history of several similar "visitations" since then would indicate that the full value of this severe lesson has not been properly appreciated.

Water may be very highly colored, and yet, if freshly collected near its source, show no very large number of bacteria. Such is the case with the best of the peaty "juniper" water which I have examined in various parts of the Dismal Swamp of Carolina and Virginia. Although having a large proportion of organic matter, this water is reputed eminently wholesome, and an inquiry among a portion of those drinking this exclusively, appears to show an unusual degree of immunity from the manifestations of diseases which might be attributed to the effects of improper drinking-water.[2] On the other hand, the turbidity which is common at this season of the year in the streams furnishing the water supply of many of our cities, is almost always accompanied by a large number of bacteria, as in these bottles of water which you see here from the Mississippi and from some of the rivers flowing into the Atlantic. The melting snow and the rain, which wash into the streams an increased amount of organic matter, introduce with it other germs (perhaps pernicious), and bring more nutriment than usual to the microorganisms already in the water, thus increasing their vitality and numbers.

It is believed that, like most of the varieties of bacteria found in water, the still larger forms of animal and vegetable life, ordinarily existing in lakes and rivers, are not prejudicial to health. It is through the products of the decomposition of many of these, when their life has ceased, that they may become harmful.

Chemistry has long furnished a means of recognizing polluted water, even when it yielded no sediment visible to the unaided eye, and the presence of considerable quantities of chlorides, nitrites, and

[1] Read before the Section on Public Health of the New York Academy of Medicine, April 5, 1889.

[2] Dr. A. Ollivier: Rapport au Conseil d'Hygiène Publique (etc.), Paris, 26 mars, 1886. A valuable monograph on typhoid fever by a scientific practitioner. As different parts of Paris receive water from rivers of very different quality, the careful health reports from garrisons and institutions, which vary only in the purity of the water supplied, are very instructive.

From the abundant evidence as to the influence of polluted water in inducing typhoid, may be cited the report of the Zurich Water Commission of 1885.

[1] Biggs and Breneman: N. Y. Med. Journal, vol. xli. (1885), May 23 and June 6. French and Shakespeare: ibid., June 13. L. H. Taylor: The Medical News, vol. xlvi. (1885), May 16 and June 20.

[2] If harmful bacteria be introduced into it, such water favors their increase, while they would not be so apt to multiply in a very pure water having much less organic matter. Despite the good reputation which this water has had, and its wholesomeness near Lake Drummond, one who has seen the whole length of the canal down to the lower end, from which the supply for vessels is taken, can realize that the water may undergo considerable contamination before it reaches that part. I am sure that the present use (in our navy) of distilled water, kept in proper receptacles, is safer than the employment of the swamp water.

ammonias, determined by the chemical tests, has shown that many a water had more organic impurity than was permissible; and, when far below the accepted standard in this respect, such a water is very justly condemned. Yet it seems as though enough of the infective element of cholera or typhoid to diffuse an epidemic throughout a community can be added to a drinking-water and not be detectable by chemical tests. A perusal of the very complete and instructive paper by Professor J. W. Mallet (in the report of the National Board of Health for 1882) shows how widely such determinations may vary and how unreliable chemical standards may be.

The known disease-producing bacteria, however, do not appear to increase in water[1] in which there is not more organic matter than the proportion that chemists of constant and large experience regard as permissible in waters which they pronounce to be of fair quality, although these harmful bacteria, if once introduced there, may long retain their vitality and remain dangerous.[2]

Since, as yet, chemistry, when called upon to aid in solving the question of the purity of a water, can at its best only approximately estimate the amount of organic matter present and its state of oxidation, while it fails to inform us whether infective matter be present or not in a given water, it has been hoped that a sure means of recognizing whether a water be in any degree infected was reached when Koch introduced the bacteriological test. This test, while very definite and conclusive under favorable conditions, has thus far been able to decide absolutely in only a small portion of the cases of disease apparently coming from the use of drinking-water. Yet in those cases where the bacteria characteristic of distinct disease have been detected in the suspected water, the isolation, culture, and identification of the disease-producing species furnish a convincing proof of the great value of the method.

The method employed is a simple one. Usually one cubic centimetre of the water to be tested is added to ten cubic centimetres of nutrient jelly, made by solidifying very nutritious beef-tea by the incorporation of one-tenth its weight of gelatine. Everything being done with rigid precautions, the water to be tested is added to the nutrient jelly, which has been softened by being warmed to a little more than 30° Centigrade. This is then quickly mixed and poured upon a cooled glass plate, where the fluidified gelatine soon becomes quite solid. Then the germs in the water, being scattered evenly throughout the mass, exercise their functions of rapidly multiplying at the room temperature; and, in the nutritious medium, the minute microscopic individual has perhaps by the third day become a dot as large as a pin-point, or much larger, containing thousands or millions of newly formed bacteria. These are called "colonies," and vary considerably in appearance, as will be seen by comparing the plates made with various waters. With a glass ruled into centimetre squares the number can be counted or estimated. If a large number of thousands be present, as in waters artificially prepared for tests and in sewage contamination of water, the only way to arrive at an accurate estimate is to employ in the eye-piece of a microscope a micrometer square, as first used, I believe, by Dr. Edw. K. Dunham, who combines with it the aid of an automatic counter. After determining the number we isolate and identify the species as in general bacteriological study.

There are many features of the subject which must be omitted in a paper of this scope, for they may not interest all, while the limits of the usual time allowed must be respected; and as the important points are to be discussed by eminent experts, I will not linger over the still unsettled question as to the absolute value of mere numbers of ordinary water bacteria in determining the sanitary merits of a water.[1] It is, however, admitted that the fewer the varieties present, the less is the likelihood of sources of contamination affecting the water. In examining a considerable number of samples of water from various sources, I have observed that the less chance of contamination there was, the fewer bacteria have I found in the waters. Thus, fine mountain lakes and springs have never in my experience, unless

[1] In my tests, when I prepared an artificial water, I added the germs directly from a pure culture, unlike Bolton, and like Wolffhügel and Riedel (Arb. aus d. Gesundheitsamte, 1886, i. p. 455), with whose results, however, I cannot so well agree as I can with those of Bolton (Ztsch. f. Hygiene, 1886, i. p. 76). I have in but two out of many trials, with disease-producing species, found typhoid bacilli to increase in sterile pure water, and then only to the extent of thirty per cent.

[2] Chantemesse and Vidal (Gaz. Hebdomadaire de Méd. et de Chir., 1887, pp. 146–150) kept typhoid bacilli alive for "months" in sterilized water from the Ourcq, which is the worst water supplied to Paris, and much impurer than the Croton, in which, when it was sterilized, I have been able to keep typhoid bacilli alive for only two weeks, and usually not over eight or nine days. I have observed that the greater the variation of temperature it was exposed to, the shorter time did this microörganism live in water. It has been found by all observers that oscillations of temperature around the freezing point were much more destructive to these than freezing them in water and allowing the ice to remain frozen. So, I have observed several times that of two flasks of the same typhoid water, the one which was kept at a temperature varying from 37° C. to 10° C., had, at the end of three days, many fewer than were in the flask kept between 16° C. and 10° C. In my last test of this sort, the flask of which the temperature varied most had, after two days, only a few more than a third of those in the one kept at the evener temperature. Heræus: Zeitschrift für Hygiene, i., 2, p. 193. Hochstetter: Arb. aus d. Gesundheitsamte, ii., 1, p. 1.

[1] Gärtner: Correspondenz Bl. d. allg. ärzt. Ver. von Thüringen, 1888; Nos. 2 and 3.

Centralbl. f. Bakt. und Par., iii., 5, p. 161 et seq.

Wolffhügel: Arbeiten aus dem Gesundheitsamte, Band i., iii., 5 Heft (1885), p. 546.

Plagge und Proskauer, Ztschr. f. Hygiene, 1887, pp. 470 and 486.

under very unfavorable conditions, shown as many as one hundred bacteria in each c. c., while the same quantity of water from a river draining thickly peopled valleys may show more than fifty times as many. While it offers less striking extreme differences than I have seen in the Hudson Valley and elsewhere, the Passaic water-shed may be briefly instanced as illustrating what I have just said. I give it because it is the smallest one near us offering every phase of importance in this connection, and because the subject of a supply to come to New York from that source has been seriously considered. The best of the upper lakes of this system showed on a pleasant day of the past winter only fifty-seven germs developing in the nutrient gelatine, while the Pequannock and other tributaries into which these lakes flow showed, in the samples collected as nearly at the same time as possible, over three hundred and fifty germs, which number increased as the water was taken further down stream; while at the Passaic Falls, in Paterson, over a thousand were detected in each c. c. Water from the hydrant in Newark, at the same time, showed nearly four thousand germs of bacteria in each c. c. The Newark water supply is at present derived from the Passaic, some miles below the place where sewage from Paterson is discharged into the river.

As in chemical, so in bacteriological water examinations, those who have had the broadest experience and who are most careful are best in a position to pronounce an opinion. Apart from any personal equation, there are still limitations to the entire comprehensiveness of the method. I may mention that bacteria are recognized as present in the human body and in its products and changed tissues, which bacteria are never found to live on the gelatine or other water plates. Then, too, a water may be submitted for examination when all the obvious infection has disappeared, or has become exceedingly diluted, and hence a most painstaking test then fails to reveal the presence of the characteristic microorganism. The period of incubation, after the infection and before the symptoms are recognized, may in Asiatic cholera occupy the greater part of a week, and in typhoid often lasts for two weeks or more, so that all traces of the harmful bacteria may have left the water before it is suspected. By reason, also, of its likeness to various harmless species, and its tendency to be overwhelmed by other more rapidly developing forms, the "colony" of the disease-producing species may be hard to identify. In this respect typhoid is decidedly more difficult than cholera to recognize in ordinary water.

For those who believe that bacteria of certain kinds living in water, and with this introduced into the alimentary canal, can in many cases induce disease, this test, being so precise and delicate as it is, must appear the best way of determining whether the filters and other means in common use are efficient or otherwise in removing the dangerous elements from impure water passed through them—in short, whether they act as "disinfectants" of the water.

As various other agencies are used in conjunction with, or as supplementary to, filtration, it is proper that I here indicate how far they serve to purify drinking-water. One of the most prevalent means directly resorted to for this ostensible purpose is the admixture of wine (usually red). Adding this to an equal amount of Croton water, I find that a varying proportion of the bacteria are killed, sometimes less than half, even after the mixture has stood for days. The spirituous alcoholic beverages (having from 45 to 68 per cent. of alcohol), mixed with Croton hydrant water in equal parts, cannot be depended upon to kill all of the bacteria, especially when "earth" bacteria are present, and a small percentage of whiskey (less than 20 per cent.) has very little effect in this direction.[1] In malt liquors, as lager beer, the prolonged boiling in the brewer's kettle has destroyed the bacteria of the original water, even if they be of the most harmful and resistive species which we meet here. Various kinds, however, if present in vats, kegs, and bottles (because of imperfect cleansing), will live in beer.[2] Almost all the artificial mineral waters that I have examined are made of unsterilized water. Pressure of carbonic acid gas, and contact with it for days, reduces greatly the number of bacteria in a mineral water, yet the typhoid bacillus and others will live for days in Seltzer water. In New York I have found many bacteria in the few carbonated beverages that I have examined.

Of the various acids which it is occasionally safe to employ, chemically pure hydrochloric acid must be used in the strength of at least one-half of one per cent. to destroy all the germs in Croton water to which *B. subtilis*, *B. typhoid*, and other bacteria have been added; and may fail to sterilize the water even after hours of standing thus acidulated. Sulphuric acid is more than twice as potent, and usually in the strength of one part to five hundred of water

[1] Koch (Flügge, Chapter V., sec. 3) found that the spores of *Bacillus anthracis* were alive even after months of exposure to the action of absolute alcohol.

Pasteur and Joubert (*Comptes Rendus des Séances de l'Académie des Sciences*, 9 and 16 juillet, 1877) stated long ago that the spores of anthrax would remain alive in absolute alcohol.

Anthrax, however, need not be expected to occur in the water supplied here, and several recent experiments show that it is possibly destroyed by other bacteria which may occur in the water.

Anthrax spores are employed in such tests because they are considered the most resistant of all disease-producing forms of bacteria.

[2] The bacteria from this source which I have found in examining a limited number of beers were mostly of non-liquefying kinds, and there were notably many iridescent "spreading" colonies. [Jan. 1889.]

In these cases water from old surface wells was used to wash out the kegs.

will render this free from living germs. Sometimes, however, it has to be used still stronger, as it is in a certain extensively advertised nostrum, in which, under a fanciful name, it plays the principal part. Alum, lime, and the other chemicals which, by inducing sedimentation of organic and mineral constituents, carry down many of the bacteria in water, do not (as is often believed) insure the annihilation and destruction of organisms present.[1] It is the mechanical action of the film, which the presence of a minute amount of these causes to settle sooner than would otherwise occur upon sand in certain large sand filters, which insures their excellence, and the scarcity of bacteria must here not be attributed to a coarse chemical action. When chemicals are added in sufficient strength to destroy speedily all the bacteria which may be present, the water thus treated cannot be recommended as a beverage.

With the imperfection of all other methods, we have in prolonged boiling a sure disinfectant of any water. I have usually found that maintaining a water at the boiling point for even less than fifteen minutes sufficed to prevent any of its germs from developing in gelatine, and this even with bad waters[2] from sewage-infected rivers. The process of distillation likewise sterilizes water.

That freezing temperatures destroy only a certain proportion of the bacteria which exist in the water from which the ice we use is formed, must, I think, be evident to those who have read Dr. Prudden's masterly paper on this subject. He there shows that the typhoid bacillus in ice retained its vitality for one hundred and three days. As he will discuss the subject this evening, I shall simply echo his previous warning against putting ordinary ice into water which we are to drink, as many kinds of bacteria may be thereby introduced.[1]

The mechanical separation of impurities is the principal action in all filters, whatever their composition. The amount of oxidation produced by the passage of considerable quantities of water through inconsiderable masses of charcoal, sand, or anything else, seems never sufficient to chemically purify an infected water, although the Berlin system of filtration, by large beds of sand skilfully managed, effects a notable improvement in this respect.

Almost all tissues tend to separate visible particles from water which is turbid, or in which a deposit settles. The fact that such matter is retained from the water passed through filters appeals very strongly to most persons; and the general assumption that such visible matter is dangerous, and that its removal insures the purification of water, seems to explain the extensive use of filters. They are all composed of felt-like matter (filtrum), or of any tissue or substance so woven, composed, or arranged as by its structure to more or less completely arrest the passage of sediment and the floating particles existing in varying amounts in nearly all natural waters. The filters in domestic use may be ranged in two classes. In one class the water runs or is poured into a tank or other receiver over or beside some filtering medium, through which the flow is into a receptacle, and from this the water is taken as needed, or is stored as fit for drinking. Those of the second variety are designed to connect with the faucets, and to strain from the water such impurities as it brings through the hydrant.

One of the most widely used varieties is this simple

[1] Residents of the Mississippi Valley, where the principle of settling water by adding alum has been extensively made use of, have expressed to me their belief that many digestive irregularities are caused by the use of alum. The danger lies in the use of an excess, and probably does not exist with the small amount which is permissible (2 : 100,000).

As was just noted of absolute alcohol, Koch also found that the spores of the *B. anthracis* were not destroyed by prolonged exposure to the action of a four per cent. solution of alum (or a concentrated solution of chloride of lime).

[2] The employment of silk threads, in and upon which are dried living bacteria with spores, seems to endow these germs with greater resistance to the action of steam heat than when the bacteria are (as in drinking-water) each surrounded by water. Having tested various waters from different cities, I was lead to believe that heating for a very short time sufficed to sterilize them. So I have made several series of experiments on the spore-bacteria usually regarded as most resistant. I used Croton water, sterilized and not sterilized, and bacteria from pure cultures on agar and potato (where the spores were, just before the experiments, seen by the microscope to be very abundant). I added from these cultures a small amount to water in flasks. These flasks were well agitated several times; then several plates made to test the presence of living bacteria. The water was from these poured into sterile tubes and Erlenmeyer flasks plugged with cotton. Several of these were tested before and after the heating. A wire basket, holding eight of these cool test-tubes or flasks (each having from ten to twenty c. c. of the infected water), was placed in a heated steam-box. The temperature ranged from 93° upward, but the thermometer did not register above 100° C. These tubes were taken out as rapidly as I could cool the plates at once prepared from them (at intervals of from three to four minutes). While this is not so absolute as are some other methods, it seemed the best for the practical object aimed at. In this way I found that the spores of *B. anthracis* failed to develop on gelatine (in five days) after they had been boiled in clear water for from two to five minutes. That this result was not extraordinary will appear to those who consult a remark by R. Koch (and Gaffky and Löffler) in Mittheilungen aus dem Gesundheitsamte (1881), p. 322.

My results with *B. subtilis* are likewise not in accordance with the accepted views. I am still experimenting in this direction, but have never found any water bacteria (which would develop in nutrient gelatine) after the water in which it was had been boiled for even a tenth of the time (six hours) which Globig states as necessary to kill (by steaming) the most resistant red-potato bacillus with which he experimented (Globig; Ztschr. f. Hygiene, iii., 2, p. 231). He used silk thread wrapped in filter paper.

[1] Prudden; on Bacteria in Ice, etc., N. Y. Med. Record, March 26 and April 2, 1887.

Bordoni-Uffreduzzi (Centralbl. f. Bakt. u. Parasitenkunde, i., 2 Band (1887), p. 495) insists that in natural (Italian) ice the bacteria which survive the extensive destruction caused by the cold of freezing do not gradually decrease, but that they indefinitely retain their vitality. He states that he agrees with Dr. Prudden's results in that disease-producing forms of bacteria resist freezing better than the harmless ones.

Fränkel—Bakt. des Eises—Zeitschrift f. Hygiene, i., 2, p. 302.

and portable one, which renders water clearer and more agreeable to the eye. It is composed of a cylinder of pressed carbon, three inches or less in diameter, and having nearly the same depth, which has from its interior a tube passing through the bottom of the funnel in which it rests, and thus requiring all the water passing out of the bottom of the funnel first to go through the mass of carbon. The flow is very sluggish unless use be made of pressure or suction, as, for example, by lengthening the tube taking water out of the filter, which impairs the effectiveness of this so far as purification of the water is concerned. After this has been used for a few days the retardation is very marked, and is due to the clogging of the filter by the various matters which form the sediment of the unfiltered water. This necessitates frequent cleansing.

Taking a freshly sterilized carbon filter of this sort and pouring into the funnel Croton water just drawn after considerable has run from the faucet, and then collecting in sterilized test-tubes the first flow from the filter, adding of this (as already explained) one cubic centimetre to ten parts of softened nutrient gelatine, the mingled gelatine and water being poured upon a cool plate, it is seen that, before three days have passed, several colonies have developed. Comparing the number of these with that found from the original Croton water plated just after being drawn, we find that at least from five to eight per cent. of the bacteria pass through the filter and develop. The percentage rises as more and more water flows through. From fourteen trials made with simple Croton water, I found that through a carbon filter, freshly sterilized and the introduction of germs from the air and other sources of contamination being guarded against, the first flow showed only a small percentage of the bacteria found in the original water used. Then I continued the use of the same filter without resterilizing, and endeavored in every way to have the conditions under which it was tested as much as possible like those which would exist in domestic use, and the supply of water in the funnel was allowed to become exhausted at times, as usually during the night.

In this filter thus used, the number of bacteria in the water passing through is, on the second day and thereafter, much larger than in the water taken after being poured into the funnel and before it has percolated through the carbon block. This excess, when large, seems to bear an inverse ratio to the volume of the flow.

It is a familiar fact that, if fresh hydrant water in a flask covered with cotton (to prevent the entrance of bacteria from the air) be allowed to stand for a day at the temperature of the laboratory, the original bacteria in the water may be found to have increased considerably. So, as a collateral test, after water had been poured into the filter and before it had passed through the carbon, I have taken some of this original water and allowed it to stand in test-tubes and flasks, both stoppered and open, by the side of the filter similarly protected from the entrance of germs from the air, and exposed to the same variations of temperature.

This water, examined at the same time with that coming out of the filter, showed that the bacteria appear to multiply much more rapidly in the substance of the filter than outside in separate flasks, likewise kept at the varying temperature of the laboratory, as it then was. The water poured in rarely contained as many as 225 bacteria in each c.c., and yet in from one to three days from the time when the freshly sterilized filter had begun to be used, the water after passing through the carbon showed several thousand in every case, and at times more than 25,000 bacteria in each c.c.

All sorts of bacteria appeared to pass through, and not alone water species. The bacillus of typhoid fever will not only pass through, but in two of my trials I found that it had increased. For such special tests I used sterilized Croton water, into which bacteria[1] were introduced from pure cultures. For artificial typhoid-water the bacillus of typhoid was added from agar and potato cultures. Harmful bacteria can pass through such filters, can possibly increase in them under certain favoring conditions, and from parallel tests seem to retain their vitality longer when in the substance of the filter than when in a glass vessel beside it.

Clean sand fairly represents the granular masses of filtering material, and has all the advantages of powdered charcoal and magnesia as generally used for filtering considerable quantities of water, while it is more readily cleansed of the accumulated organic matter and, unlike spongy iron,[2] adds nothing objectionable. Unless, as in the case of the large Berlin filters and others acting similarly, rendered more effective by overlying silt and organic matter, beds of sand do not prevent the passage of large numbers of bacteria. I have found many bacteria in waters from various artesian wells coming from a deep stratum of sand. Through a thin sterilized

[1] B. fluorescens (Oneida) and B. liquef. alb. aq. (Croton). For cocci: Staph. pyog. aureus and a coccus obtained from the water of Salmon River, west of the Adirondacks. For a spiral form: Sp. tyrogenum was used as being harmless, yet similar to the cholera microörganism.

[2] For some of the reasons why spongy iron has fallen into disuse, especially in America, see a very instructive paper by the late Prof. W. R. Nichols in the Ninth Report of the Massachusetts Board of Health, 1878, p. 137.

For favorable notice of spongy iron, see Frankland, Proc. of the Royal Soc., No. 338, 1885. I do not care to consider it here, for it is a proprietary preparation as offered upon the market (in London), is variable in quality, and never sold here.

layer, from six inches to one foot in depth, of the finest sand procurable from beaches, all the way from forty per cent. to ninety-five per cent. of the bacteria in the original water pass, even when the level of the water is never more than three inches above the surface of the filtering mass. When a higher pressure is afforded by the water, very few of the bacteria are kept back.

As in nearly all other filters, so through a layer of sand all kinds of bacteria, harmless or harmful, appear to pass easily. Here, too, they can multiply in the moist sand. Thus, I have found the hydrant water, which entered the sand filter with 290 bacteria in each c.c., to come out through the filter (not freshly sterilized before using) with sixty and one hundred times as many as entered. In a gramme of sand taken from a filtering bed, I have found more than 10,000 bacteria.

The combination of other substances with sand, as in numerous small and large filters, fails to improve the usefulness of either, except in so far as the elimination of sedimental and other coarser particles is concerned.

Sponge is often employed for this purpose, as well as independently, yet it is incapable of separating bacteria from the water strained through it simply, or through sand or other substances used with it. When a large mass of fine, sterilized sponge is closely packed, the first few ounces of hydrant water that pass through may have a very small percentage of bacteria, but the proportion soon increases, while if the sponge-mass be considerable and loosely packed it may, even in the beginning and under exceedingly slight pressure of water, keep back no more than fifteen per cent. of the bacteria of the original water. This freshly sterilized sponge can at the end of the first day of ordinary use cause the water then flowing through it to contain from increase ten times as many bacteria as the Croton water poured in. The stronger the pressure, and the more rapid the flow, the lower is the ratio of excess due to increase in the filter over the quantity found in the unfiltered supply, which, of course, was here, as in all other tests, regularly plated at the same time with the filtered water. When the flow is sluggish, and when it stops entirely at times because of all the water supplied having passed through, the sponge substance favors the increase of the bacteria to a greater extent than is the case with sand. The sponge, within twenty-four hours after sterilization may, under these conditions, cause the water first running through after the intermitting of the flow to have five hundred times as many bacteria in each cubic centimetre as are found in the water supplied for filtration.

The only way really to cleanse such a filter is to remove the sponge and boil it. Then the process repeats itself. In a few hours after unsterilized water moistens it, the mass of sponge is again teeming with bacteria. Sponge filters are, so far as I have seen, becoming less popular. It is easily recognized, even by an untrained observer, that the organic matter in sponge can undergo decomposition under the conditions obtaining in ordinary filters. Several of the large filter systems used in manufactories, hotels, and other places where large amounts of strained water are used, employ sponge and the filtered water abounds in bacteria.

Filter paper, as used in laboratories, is useful in separating precipitates and sedimental particles from water, but at least from fifty to seventy per cent. of the bacteria in Croton hydrant water go through with the water filtered, even if the pressure be exceedingly slight. The paper which I employed in the trials was, of course, carefully selected, and the folding was cautiously done, so as to prevent any break in the substance. Only single sheets were tested.

"Prepared cotton," cleansed as for surgical dressings, and so made absorbent, removes considerably fewer of the impurities of the water than does the filter paper. Two-thirds of the bacteria pass through when the cotton is at its best, freshly sterilized and carefully packed. If enough be used, it will usually render the water clear; but, as it has been lauded as a filter, I ought to add the statement of my observation that, when left moistened with water, as in the intervals of filtering through it, the bacteria of the original water can multiply over one hundred and fifty times, and all kinds can pass through it.

Combinations of the various substances mentioned have hardly any enhanced merit as strainers, and, as far as the bacteria are concerned, the combination seems to add no safeguard. Sand with carbon (bone charcoal) and sponge or cotton, hold back at first a larger percentage than sand would, by itself. Yet bacteria pass through in any case, and the increase afterward is greater than in simple sand. This I have seen in various filters.

In a well-known bottling establishment of New York, where immense quantities of artificial waters are prepared every week, all the water used in their preparation flows through a layer of fine sand in the bottom of an enormous vat and, from the receptacle into which it then flows, it passes through a layer of charcoal. These layers are each less than a foot in thickness, and water passes rapidly through. The sediment is thereby removed, but in the single examination which I was enabled to make I found that each cubic centimetre of the filtered water had over 3200 bacteria on each of the two plates made, while the Croton taken from the hydrant in the immediate neighborhood on the day before averaged a few over one-eighth as many (432).

Asbestos of the best quality, new, freshly sterilized and tightly packed, I have found capable of

holding back all bacteria when the pressure of the water was low, and the few that were forced through when the substance was defective did not seem to multiply so rapidly as in other filter-masses. While it, when of the best finish and most tightly compressed, deserves to rank next to the principle employed in porcelain filters, these latter are superior in that they can be regularly furnished of a uniform and definite quality which produces the best results, while I have found it difficult to keep the best asbestos boards up to their original standard of excellence, and if the surface be large enough to insure an abundant flow of water, flaws are liable to arise, and these let various bacteria through. With asbestos it is the fineness of the surface which the original water encounters that is important more than the thickness of the layer.[1]

Although wire cloth strains out the coarser particles, its structure does not cause the removal of any of the bacteria from water passing through. Still it has the positive merit of being easily cleaned, and can be heated in an oven or boiled to sterilize it. Furthermore, it does not furnish a filter-mass for the bacteria to multiply in, although harmful bacteria can adhere to it and become dangerous if it be left uncleaned.

Closely woven cloth, such as thick, dense flannel, when only a slight pressure is exerted by the water, may stop ten per cent. of the bacteria in the water poured upon it. It is easily cleansed and, if very often changed, and boiled before using, it serves excellently as a simple strainer without the disadvantage, in this respect, of ordinary filters, in whose substance the increase of bacteria may be enormous.

Like porcelain, filters of porous stone, if of the best quality, prevent the passage of bacteria with the water filtered through them just after they have been sterilized. To test porous stone I employed selected perfect specimens of a popular filter which very satisfactorily clears all turbidity from as bad a water as that of the Hudson River at its worst. In these, the stone layer was cemented into a porcelain cylinder and was about three-eighths of an inch in thickness. The pressure was never more than that of ten or eleven inches of water, and, at the fastest, less than three-fourths of a litre passed through in an hour. As the sediment of the water settled upon the surface of the stone, the flow became much slower. During twenty-six trials of this kind of filter, it had previously been sterilized ten times by exposure to moist or dry heat, or to both, for several hours. In every one of these ten cases the various waters poured into the receptacle above the porous stone for the first time after sterilization, flowed through germ-free; that is, the stone was permeable for water, but at first allowed no bacteria to pass through, and the plates of gelatine developed not a single colony from the usual cubic centimetre of the filtered water. After some hours of use, a few bacteria had insinuated themselves into the stone or were drawn through with the water. Within twenty-four hours the water flowing through and collected in sterilized receptacles contained many bacteria, which numbered regularly from seven to fourteen times as many as were in the original hydrant water supplied during these trials. After several days, the number of bacteria had so multiplied in the stone, that the first water running through after the stone had remained for several hours without any flow through it (as happens constantly over-night in domestic use), showed in each cubic centimetre of this filtered water over one hundred times as many as the average water poured in for filtration. To test further these filters, I have used artificial waters made by adding bacteria of all shapes and characters, from pure cultures to Croton water sterilized by boiling. These various kinds can get through, but the disease-producing and spiral forms usually died out in large numbers before any could pass. From Croton water, the most marked by its predominance in the filtered product was a short, mobile bacillus which was unlike the two varieties first forced through the porcelain in my experiments.

(To be concluded.)

[1] Hesse; Deutsche med. Wochenschrift, 1885. No. 5.

SUCCESSFUL CASE OF NEPHRORRHAPHY FOR FLOATING KIDNEY.[1]

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Miss E. J. F., of Sunbury, Pa., aged thirty-five, height four feet eleven inches, weight ninety-two pounds, was sent to the Woman's Hospital on October 4, 1888, by Dr. Mary A. McCay, with a diagnosis of floating kidney. For the following notes I am indebted to Drs. Chapin and McKee, resident physicians. The patient was delicate as a child; menstruation began at fifteen, and was always painful and irregular. At eighteen years of age she was thrown from a wagon, falling with considerable force on her chest and abdomen. Shortly after the fall she suffered from severe pain in the right side and a great deal of distress across the back. Menstruation ceased for six months, and was followed by dropsy and severe illness. There was frequent inclination to vomit, and a great deal of palpitation of the heart. In spite of constant medical attention, she dragged out a miserable existence. About seven years after the fall she noticed a movable tumor in the abdomen, which Dr. McCay believed to be a floating kidney.

Condition on admission.—Appetite and sleep poor; urine 1020 sp. gr., slightly alkaline, twenty-nine

[1] Read before the Philadelphia County Medical Society, March 27, 1889.

ounces in twenty-four hours, no albumin, no sugar. Heart and lungs normal; uterus retroflexed. In the right abdomen was a tumor, about the size of the kidney, which could be freely and easily pushed two or three inches to the left of the middle line back into the right lumbar region, or down into the right iliac fossa. Neither the hilum nor the bloodvessels could be distinctly made out. Percussion over the position of the right kidney showed a tympanitic note, the left renal dulness being distinct and normal. The tumor was evidently not connected with the uterus, ovary, or liver.

Operation, October 26, 1888.—Ether was administered. An oblique incision was made at the outer border of the quadratus lumborum four inches long. So soon as the abdominal fat was discovered, search was made for the kidney. The colon was first found, but the kidney was absent from its normal position. Strong pressure being made on the abdominal tumor, it was partly pushed back into position, but could even then only be touched by the finger-tip. On separating the borders of the incision by retractors, it was seen to be the kidney, bare of all fat. In order to replace it entirely, it had to be seized by a volsella. Seven carbolized silk sutures were next introduced by a Hagedorn needle, four posteriorly and three anteriorly, through the capsule and substance of the kidney, by which it was attached to the muscles and aponeurosis of the abdominal wall. Seven deep sutures of chromicized catgut were then introduced through the entire muscular wall of the loin, but they were not tied, as I intended that the wound should remain open for a few days, if not permanently, in order to produce cicatricial tissue between the kidney and the muscular wall. No provision for drain was necessary of course. The wound was covered with an ample bichloride gauze dressing. Her recovery was entirely uneventful. Her highest temperature was 100.9°. The urine was entirely free from any blood, though the bladder was irritable, and the catheter had to be used for several days. The wound was so completely filled up within the first forty-eight hours, that I removed the stitches that had been passed through the muscular wall. I kept her flat on her back for four weeks, when she was allowed to rise for a short time. There was considerable, apparently rheumatic, pain in the small of the back for three or four weeks after the operation, which disappeared and again reappeared, and which seemed to be benefited by salol. Seven weeks after the operation there was a moderate amount of albumin in the urine, which disappeared after the use of Basham's mixture for three weeks. Soon after she got out of bed, I tried the effect of a pad to support the kidney in front, but its use caused so much discomfort that I abandoned it, trusting wholly to the silk sutures and cicatricial tissue to hold the kidney in place. The tumor formerly discovered in the abdomen was entirely gone, and the normal renal dulness reëstablished, though a little lower down. She went home on the 5th of January, 1889. I heard from her to-day, March 16, 1889, and she says: "My back is still weak, but the pain is fast disappearing. The kidney is still firmly anchored, and I am feeling better generally. Words cannot express my gratitude to you for what you have done for me."

REMARKS. *The cause.*—A lax abdomen following frequent pregnancies has been supposed to be the origin of floating kidney, as it is of floating liver. In the case here narrated the patient was unmarried, and the abdominal wall was not at all lax. Again, the absorption of the perinephritic fat has also been supposed to be a cause; but in this case, as soon as the abdominal wall was penetrated, the perinephritic fat was at once encountered. But it was a noticeable fact that the kidney itself was entirely free from any fat. In other words, the fatty bed in which the kidney should lie was in its proper place, but the kidney was displaced, and there was no fat on the kidney itself. It seems reasonable to conclude that the dislocation of the kidney was due to the fall at the age of eighteen, though the abdominal tumor was not discovered till seven years later. Landau, who has written the best monograph both upon floating kidney and floating liver, states that, of 314 cases of floating kidney, 273 were in women as against 41 in men. In 178 cases, it existed on the right side in 151, on the left in 13, and in 14 on both sides. The present case being in a woman, and upon the right side, emphasizes still further his statistics.

The symptoms.—Digestive disturbances, especially constipation and very fetid breath, were not marked, though they were present to a moderate degree. The chief trouble was pain and constant discomfort, which was not only physical, but mental, the very existence of the tumor being a source of constant worry. The tumor itself was not especially tender to the touch, but it created a constant aching pain. Neither the hilum nor the pulsating renal artery could be distinctly made out, but the character of the tumor and the altered renal dulness made the diagnosis quite clear.

The treatment.—Recumbency alone has been advised by Landau, but this seems to me altogether too expectant. Only the most sanguine could believe that by this treatment, if such it can be called, a kidney would resume its normal position and quietly continue there sufficiently long for the adhesions to be reëstablished with any prospect of permanency.

I did not try any treatment by pad or bandage, as the patient was from a distance and could not remain the long time necessary to decide whether such palliative treatment would answer. On the other hand, extirpation of the organ was equally foreign from my thoughts. In my opinion, this should only be done after failure of an attempt at fixation. The danger to life of a floating kidney is absolutely *nil*. It is, therefore, only to remedy the discomfort that exists that we operate. Hence, I

do not think extirpation at all justifiable unless we first attempt to fix it *in situ*, and having so failed, it is only justifiable even then in case the discomfort is very great. Dr. Maurice H. Richardson (*Boston Med. and Surg. Journ.*, June 14, 1888), who has published an excellent paper with a full bibliography, quotes from Brodeur the following figures: Of 235 nephrectomies, 125 were done by lumbar incision, with 47 deaths (37.6 per cent.), 110 by abdominal incision, with 55 deaths (50 per cent.). As against this large mortality from nephrectomy, however, Gross has collected 17 cases of nephrorrhaphy, with only 1 death, a mortality of only 6 per cent. It should be added also, that in the fatal case (Ceccherelli, *Centralbl. für Chir.*, 1884, 44, 743) the surgeon passed the stitches around the twelfth rib, a procedure which is absolutely needless as well as dangerous.

Hahn (*Centralbl. f. Chir.*, 1881, p. 449) first proposed fixation for a floating kidney by operative procedure, and practically perfected the operation. The operation is simple. The patient being laid upon the side, an oblique incision is made at the outer border of the quadratus lumborum. The edge of this muscle being recognized, the perinephritic fat is found immediately in front of it, at its outer border. This fat having been cut or torn through, the kidney may be seen at once, but, if it is very movable, it may be so far displaced as not to be seen, or, as in the present case, may be even felt with difficulty by the tip of the finger, even when an assistant pressed it firmly back through the abdominal wall.

Mr. H. Morris (*Surgical Diseases of the Kidney*, p. 45) makes a distinction between a kidney which has no mesonephron but moves freely about behind the peritoneum, this being called a "movable kidney," and a "floating kidney" which does possess a mesonephron, and therefore floats freely in the peritoneal cavity. In cases, therefore, of a strictly floating kidney, it would be necessary to open the peritoneal cavity before it could be fixed in the loin. This distinction is confirmed by four cases of dissection to which Mr. Morris refers. Comparing them with the present one, the range of movement to the left of the umbilicus and into the right iliac fossa was so great in this case, that it would seem proper to call it a "floating kidney," yet, at the operation, no renal mesentery or mesonephron was found. The probable mode of its production would also militate against the existence of any mesonephron. The kidney was far away from its normal position, but when pushed back into its proper place no layer of the peritoneum could be found that by any possibility could be called a mesonephron, and the peritoneum was certainly not opened.

In spite of the fact that Paoli (*Centralbl. f. Chir.*, 1885, 51, 910) cut through the twelfth rib in order to obtain room, it would seem to be rarely necessary to do so. When found and pressed back, the kidney should be fixed as nearly as possible in its normal position. Usually it will be impossible to replace it as high as it was at first, but lowering the site by two inches is not uncommon, and seems to be of no importance.

The sutures that have been employed (either of silk or of catgut, disinfected, of course) may be passed (1) through the capsule of the kidney, or (2) through the parenchyma and capsule both, and may either be (3) left permanently or (4) removed. In this case I employed antiseptic silk, which I consider decidedly the best, and passed the stitches not only through the capsule, but through the parenchyma of the organ itself, three on the anterior surface and four on the posterior, stitching the kidney to the muscles, and what I consider more important, to the aponeurosis, which exists on each side of the incision. Finally, these stitches were not removed, but were left *in situ*. I believe with Svennson (*Centralbl. f. Chir.*, 1886, 824), that many failures have been due to employing absorbable catgut, to the avoidance of passing the stitches through the substance of the kidney, and to removal of the stitches, which in all cases I think should be left in, whatever the material employed. Svennson inserted as many as fourteen silk stitches, which were left in place and caused no trouble. The wound is best left to heal by granulation. I introduced a number of stitches to close the abdominal wall if necessary, but in twenty-four hours it was so filled up that it was evidently a needless precaution. The larger amount of cicatricial tissue that is produced by leaving the wound to heal by granulation probably fixes the kidney more firmly.

Another very important point is, that the patient lie flat on the back for at least a month after the operation, in order that the cicatricial tissue binding it in place may become thoroughly developed and firmly established. Even then, I would advise some support for the kidney in front by a pad or bandage, provided the patient bears it well. In this case I soon abandoned it, as it caused too much discomfort. It is to be noticed that though the stitches were passed through the kidney substance, the patient had no hematuria (this was carefully watched for) and that no inflammation or reaction seemed to follow. But seven weeks after the operation considerable pain developed in the region of the kidney together with some albuminuria. This disappeared, however, after the use of Basham's mixture. The pain seemed to be rheumatic, and was soon relieved by the administration of salol.

LOBULAR EMBOLIC PNEUMONIA.[1]

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(Concluded from page 404.)

EMBOLIC pneumonia is usually bilateral; when single, the right and left lungs are attacked with equal frequency, in my experience, though in that of others the right lung is most often affected.

There is reason to suppose that embolic pneumonia may occur at any age of life, though in my eighteen cases I have only noted it between the age of fourteen and sixty-eight. In pyæmia it may, of course, occur at any period. In cardiac cases it is most apt to occur in middle life, presumably when cardiac compensation is breaking down, or when the system is beginning to show the signs of age. Among the antecedent diseases, or phenomena, were noted the following:

In eight cases endocarditis.

In eight, pyæmia, either from some fall, mechanical injury, or from operative procedures.

In three, pericarditis.

In three, chronic Bright's disease.

In one, chronic bronchitis.

Some of the conditions occurred jointly in one individual. The cardiac cases were mostly associated with mitral disease; the pyæmia with surgical operations on the pelvic viscera in the male sex.

In approaching the topic of symptomatology we are at once confronted by the fact that we have to do with a disease that exhibits few characteristic traits at the bedside; and that we are often debarred from an inquiry as to them, either by the coincident systemic disease, whose other manifestations are of vastly more importance; or because the patient is unable to submit to a physical examination, without which a diagnosis would be conjectural. Hence, embolic pneumonia has not only been an obscure topic clinically, but is likely to remain so for some considerable time. More than this, embolic cardiac pneumonia usually occurs in patients that are already suffering from the interstitial pneumonia of heart disease, with a considerable amount of bronchial catarrh, and often pulmonary œdema to some extent; so that an infarction would naturally be more or less masked. Add to this, that infarcts occur chiefly where respiration is very feeble, and we have an additional difficulty thrown in our way. Indeed, we have not a single pathognomonic symptom. Take, for example, the temperature. The rise is slight, or there may be none at all. Even in pyæmic cases we may not be able to tell whether a sudden rise is due to the pneumonia, or to some other more distant manifestation of the disease. In cardiac affections there will be little or no rise of temperature when infarction occurs; when the infarct has been recognized as a foreign body, we have reason to suppose that fever will show itself. Sometimes in a cardiac case the temperature will be subnormal. If it rise, it will not pass 102°; 101¼° is the highest I have known.

In reference to physical signs I have found that they were marked in *only* about fifty per cent. of my cases. In two, the regular signs were present, but there was little in the others on which to fix a diagnosis. In two, there were the signs of pleurisy only. In two prolonged expiration, in one of which there was vocal fremitus, in the other cough. In one there were "whistling or squeaking" sounds, supposed to be due to obstruction. In one there was fine crepitation, with mucous râles. Of course, if the area of consolidation is large there will be no difficulty in getting physical signs, especially as the infarctions are apt to be peripheral. Pain in the side was present in only three instances and colored sputum in two. The pulse rate is rarely high. I have found it as high as 120, but it is rarely above 100. The respiration will usually be hurried. It is most so in pyæmia and may reach 30 to 50 and even 60. In cardiac cases it is not so much increased. If the infarctions reach the pulmonary pleura, which is usual, there will be pleurisy. Hence this secondary affection may be looked for as a regular phenomenon, and it will facilitate the diagnosis, unless there is much effusion.

It will be apparent, therefore, that we should not base our diagnosis on any symptom or group of symptoms, but should take them all into consideration. Signs of uræmia should not be neglected. I found them present in exactly half my cases.

The causes of death I found as follows:

In 10 septic poisoning.

In 3 heart failure.

In 1 cerebral compression.

In 1 cerebral embolism.

In 1 exhaustion from diarrhœa.

In 2 the causes were indeterminate, though in 1 of these the patient had uræmia.

The prognosis varies according as the case is cardiac or pyæmic. In the cardiac variety we have reason to suppose that the process *tends* to ultimate resolution with recovery. In examining an infarcted lung that has shown the signs of protracted heart disease, there is always evidence to show that restoration is being accomplished; in fact, our clinical experience sustains this view, but a fatal issue may take place at any time, though the cause of death is not directly traceable to the respiratory tract. Usually the disease will last a long time, and indeed like the broncho-pneumonia of children and of adults, it is characterized by successive inroads upon the lung. It is, therefore, subacute in its course. In pyæmia

[1] Read at the meeting of the New York State Medical Society, February 6, 1889.

A Table showing the Chief Phenomena in Eighteen Cases of Lobular Embolic Pneumonia.

No.	Age.	Sex.	Month.	Locality of disease.	Extent.	Antecedent condition or diseases	Coincident condition or disease.	Supposed or possible cause.	Duration.	Physical signs.	Pain.	Sputum.	Pulse; respiration.	Urinary symptoms	Nervous symptoms	Gangrene or abscess.	Cause of death.	Remarks.
1	45	F.	Jan.	Bilateral	.....	Chronic diffused nephritis; aortic stenosis.	See preceding column.	Cardiac,	Unknown	.....	...	.....	.....	Uræmic.	Uræmic.	.....	Cerebral embolism.	
2	20	M.	Jan.	"	.....	Mitral endocarditis; chronic bronchitis; pleurisy with effusion.	"	"	26 days	Sweating; whistling sounds from obstruction.	...	Bloody.	.....	Trace of albumin.	.....	.....	Heart failure	One infarct measured 1½ inches in diameter.
3	38	F.	Nov.	"	Disseminated.	"	"	"	1 day	Prolonged respiration; vocal fremitus.	...	.....	.....	.....	Delirium or coma.	.....	"	
4	43	M.	Feb.	Right	Half of lower lobe.	Pericarditis; mitral stenosis; chronic Bright's.	"	"	3 days	Regular signs.	...	Bloody.	Pulse, 100–130	Albumin 10 p. ct. scanty water.	.....	.....	"	A case of unusually extensive disease.
5	68	M.	July	Left	.....	Chronic endarteritis.	Chronic Bright's.	"	.....	Fine crepitation; mucous râles.	...	.....	.....	No casts; trace of albumin.	Present.	.....	Compression of brain.	Ulceration of first portion of ascending arch of aorta.
6	22	M.	Sept.	Bilateral	.....	Injury to hand; pyæmia.	See preceding column.	Pyæmia,	7 days	Cough; prolonged respiration.	None.	.....	Resp. 40–60	.....	Delirium	Abscess.	Septic poisoning.	
7	33	M.	Feb.	Left	.....	Urethral stricture.	Pyæmia.	"	2 days	Signs only of pleurisy.	...	.....	.....	.....	.....	"	"	
8	50	M.	Jan.	Right	.....	Renal cyst. Explor. dilatation of bowel.	Pyæmia;	"	2 days	Regular signs.	...	.....	Pulse, 120–133	Albumin and casts	Delirium and stupor.	"	"	Pyæmia due to forcible stretching of rectum(?)
9	56	M.	Dec.	Bilateral	.....	Urethral stricture.	Pyæmia; chronic Bright's.	"	7 days	.....	...	.....	.....	Uræmia.	Convulsions and coma.	"	"	
10	18	F.	Dec.	Right	.....	.....	.....	"	.....	.....	...	.....	.....	.....	Stupor.	Abscess.	"	
11	14	M.	Sept.	Bilateral	Disseminated.	Synovitis of knee from foreign body.	Operation.	"	.....	None.	None.	.....	.....	.....	Delirium	"	"	
12	28	F.	April	"	Lower lobes.	Acute inflammation; mitral endocarditis.	See preceding column.	Cardiac,	3 weeks	.....	Present.	.....	.....	Albumin	.....	.....	Exhaustion from diarrhœa.	
13	48	M.	April	Left	Upper lobe.	Pericardial effusion and aortic endocarditis.	"	"	10 days	.....	...	.....	.....	Uræmia.	Delirium	.....	.....	
14	19	M.	Oct.	Bilateral	Disseminated extensively	Blow on the ribs.	Pericarditis with effusion; pyæmia.	Pyæmia,	.....	.....	...	.....	P. 102 R. 42	.....	"	Abscess.	Septic poisoning.	
15	38	F.	Dec.	"	Lower lobes.	Mitral disease; chronic Bright's; hydrothorax.	See preceding column.	Cardiac,	.....	Marked by pleurisy with effusion.	Present.	Bloody.	.....	Albumin 5 per ct.	.....	.....	"	
16	...	M.	Nov.	"	.....	Urethral stricture.	Operation.	Pyæmia,	8 days	.....	...	.....	.....	.....	....	.....	"	
17	...	M.	Jan.	"	.....	Blows upon chest.	Chronic diffused nephritis.	"	.....	.....	...	.....	.....	.....	.....	.....	"	
18	29	M.	Feb.	"	.....	Inf. rheumatism; endocarditis; alcoholism.	See preceding column.	Cardiac,	.....	.....	...	Scanty sputum.	P. 100 R. 24	.....	.....	.....	.....	

the result will be fatal in almost every instance, perhaps in all. It is bound to terminate in pulmonary abscess, if the patient survive the early stages of the disease. From such suppurations there can be no recovery, I fancy.

Our treatment of embolic pneumonia is usually unsatisfactory. Jürgensen in his famous monograph refused to discuss it.[1]

But dismissing from our consideration the topic of pyæmic pneumonia, which obviously needs no discussion here, and taking up the cardiac form of the affection, it is plain that we do have a condition of the lung that will often appear before us for treatment, and which we shall have to care for.

It is true that the cardiac disease first enlists our attention, with its attendant dangers, heart failure, cerebral embolism, and possibly septic poisoning.

And hence we very properly direct our main efforts toward securing strength and rhythm for the heart's action, while we enjoin upon our patient the necessity for his observing a proper dietetic regimen, and seek to impress on him the necessity for regulating his manner of life so as to avoid all heart strain. Naturally, too, we seek to correct any constitutional vice that may lie at the root of his cardiac trouble.

And the success that attends these efforts of the intelligent practitioner will often cause the disappearance of the pulmonary complication, or check its occurrence. Hence treatment is important though it be indirect. But if the lung has been implicated to any great extent, the direct treatment that is applicable to areas of extensive consolidation finds here an appropriate field.

In the vast majority of cases the prognosis of embolic pneumonia in heart disease depends upon the nature of the primary cardiac disease. The pneumonia of itself seldom kills—though it may, by a hemorrhage.

In fact, an embolic pneumonic process of itself actually tends toward spontaneous resolution.

The following cases are instances of the disease:

CASE I.[2]—A gentleman of this city was taken sick with a fever that confined him to his room for four or five days; then feeling better he went down stairs but soon returned and took to his bed. During the first two weeks of his attack the temperature ranged from 98° to 100°; the pulse from 140 to 150, sometimes to 160. It was manifest that he was suffering from aortic stenosis. But the respiration was never embarrassed except when the patient sat up; there was no pain except over the spleen. After death the post-mortem examination revealed infarctions in the lungs, spleen, and kidneys, and suppurative foci were found in the meshes of the pia mater. This case was classed as one of the so-called infective or suppurative endocarditis. The cusps of the aortic valve were covered with vegetations. The pulmonary symptoms were masked by those of the other viscera.

CASE II. (Case No. 12 in Table.)—A widow, twenty-eight years of age, entered the Presbyterian Hospital in December of 1877. She expressed herself as having been delicate for five years, having had a slight cough all the time. But for seven years she had suffered from her heart and eight years previously had experienced an attack of acute rheumatism. About three weeks before admission she was taken with a chill. Breathing was found to be short and rapid. Expectoration frothy, pulse 120. Temperature 101¼. Nausea, pain in the right side—no heart murmurs, but heart's action feeble. The urine contained albumin in large quantity. The patient died apparently of exhaustion. At the post-mortem examination it was found that there was a marked mitral stenosis of an extreme character, the orifice being button-hole-shaped and only ¾ inch in its longest diameter. The kidneys showed evidences of a slight degree of chronic diffuse nephritis. The liver was of the nutmeg variety. In both lungs there were nodules of embolic pneumonia; in the right one the size of a turkey's egg, with some smaller ones. Left lobe in a similar condition.

CASE III. (Case No. 9 of Table.)—This is an example of pyæmic or embolic pneumonia leading eventually to an abscess. M., a salesman, was admitted into St. Luke's Hospital in December of 1882, for stricture of the urethra near the meatus. It was a stricture of large calibre and was easily cut with Otis's dilating urethrotome. In the evening some little difficulty was experienced in passing a flexible catheter, and water to the amount of only fifty ounces was drawn. Ten minutes afterward the patient had a chill, on the following day the patient had a second chill after the catheter was used. The temperature had now arisen to 101° and there was delirium with convulsive twitchings of eyes and hands, but these bad symptoms ameliorated and the patient talked intelligently; on the following day he died cyanotic. At the post-mortem examination infarctions from the size of a pea to a marble were found in the left lung, with a small abscess in the lower lobe. In the middle lobe of the right lung were several small collections of pus. The patient had also chronic diffuse nephritis.

[1] Jürgensen in Ziemssen's Cyclop., vol. v. p. 259.

[2] This case is not included in the Table on page 435.

MEDICAL PROGRESS.

The Clinical Significance of Colorless Stools Unaccompanied by Jaundice.—DR. ANDREW CLARK, at the meeting of the Royal Medical and Chirurgical Society of London, held March 26, 1889, read a paper written by Dr. T. J. Walker upon this subject. After referring to the accepted views of the significance of clay-colored stools, the author gave particulars of two cases in which, during life, a persistent symptom was the absence of color in the feces, and in which the diagnosis made of obstruction of the pancreatic duct, with a healthy condition of the bile-duct, was confirmed by the necropsy. From these cases Dr. Walker concluded, first, that the formation of hydrobilirubin, the coloring matter of the feces, depended on the mutual reaction of the bile and pancreatic fluid, under

the influences met with in the intestinal tract; secondly, that in disease a deficiency of pancreatic fluid would, equally with a deficiency of bile, cause the pathological condition of colorless or clay-colored stools; thirdly, that since, according to the most recent physiological researches, that portion only of the colored constituents of the bile which had been converted into hydrobilirubin was excreted in the feces, while the unchanged bilirubin, bilifuscin, and biliverdin were absorbed, it followed that, if hydrobilirubin could not be produced without the aid of the pancreas, that organ must have an important *rôle* in regulating what proportion of the bile entering the intestines should be absorbed and what thrown off in the feces.

Dr. Walker then pointed out that these conclusions received confirmation from the records of other published cases, that Claude Bernard recognized that the pancreas had a part in causing the color of the feces, and that the state in which the bile pigments were found in the meconium of the fœtus, while the pancreatic function was in abeyance, also accorded with these conclusions. He further pointed out that the fact of the pancreas influencing the excretion of the bile in the feces would, if accepted, reconcile the discrepancy between the clinical observation that certain drugs produced copious bilious stools, and the physiological observation that these drugs had little or no influence on the secretion of bile by the liver, and that the same fact would explain those hitherto inexplicable cases in which, with no evidence of arrest of the bile-secreting functions of the liver, or of obstruction of its ducts, the symptom of white or clay-colored stools was persistently present. In conclusion, Dr. Walker indicated the practical importance of the views he had endeavored to establish in the treatment and diagnosis of pancreatic disease and of all forms of bilious disorder.—*British Med. Journal*, March 30, 1889.

The Treatment of the Navel of the Newborn.—Dr. A. Baginsky, at a meeting of the Society for Internal Medicine, of Berlin, stated that he had seen no good results follow the application of moist antiseptic bandages to the navel of the newborn, as recently recommended and practised by a number of gynecologists. He considers the application of carbolic acid as most dangerous, for only a small abrasion of the navel is necessary to cause toxic symptoms which generally terminate fatally. He himself uses as a bandage, cotton to which small quantities of iodoform have been applied.

The Treatment of Phimosis.—The treatment of phimosis was also discussed on this occasion. Two varieties of this affection exist. In one variety we have to do with a short, rigid prepuce with internal agglutination. Simple cutting without dilatation is the best treatment for these cases. In the second variety we have to deal with a very long prepuce, and frequently with suppression of the secretion, swelling, and the discharging of pus. For these cases Dr. Baginsky advises dividing the prepuce. In a case of pyæmia which came under the author's observation, the fatal termination could only be attributed to the obstinate refusal on the part of the patient to submit to an operation, thus giving the microörganism every opportunity to invest the body and to set up, in the various organs and extremities, necrosis and suppuration.—*Wiener med. Presse*, March 17, 1889.

Creasote in the Treatment of Tuberculosis.—Dr. Bourget, of Geneva, gives in detail the treatment of tuberculosis with creasote, as first described in the *Semaine Médicale*, No. 10, and as at present carried out at the Medical Clinic of Geneva. The object of this method is to saturate thoroughly the organism with creasote. To accomplish this, creasote is given internally, externally, and by means of inhalations. In winter, creasote is given internally with cod-liver oil, as follows:

℞.—Cod-liver oil . . . . 500 parts.
Creasote . . . 2 to 4 " —M.

From two to three tablespoonfuls to be taken daily.

In summer, when cod-liver oil is not well supported, creasote is given in the following formula:

℞.—Creasote . . . 30 to 45 grains.
Arseniate of sodium . ¾ grain.
Malaga wine . . . 1½ pints.—M.

Two wineglassfuls daily at mealtime.

Besides this, inunctions are made every evening with the following ointment:

℞.—Creasote . . . . . 10 parts.
Lanolin, Lard, Olive oil . . . . āā 50 " —M.

Make an ointment.

Finally, the patient wears day and night a permanent inhalation-apparatus, consisting of two small pipes, one for each nostril, through the centres of which runs tissue paper saturated with creasote.—*Wiener med. Presse*, March 17, 1889.

Therapeutics of Bisulphide of Carbon.—Some observations on the employment of bisulphide of carbon, made chiefly in the Purisima Hospital, Santiago, S. A., are published in the *Revista Médica de Chile*, and show that this unpleasant remedy may have more therapeutic power than it is usually credited with. It has occasionally been employed in this country for diarrhœa, and externally for ulcers. Sapelier also employed it with apparent advantage in typhoid fever, and it has been recommended in diphtheria and other diseases in which microörganisms occur. The Chilian cases referred to included one of acute and one of chronic dysentery, one of atonic dyspepsia, one of simple gastric ulcer, and one of typhoid fever. The dose given was generally about two ounces of a saturated solution of the bisulphide in water, mixed with half a tumblerful of milk or a little syrup, taken half an hour or so before meals. This very quickly relieved the pain and tenesmus. In the typhoid case, which occurred in a child of ten (not a hospital patient), whose condition was becoming alarming, enemas of a pint of water, containing about half a drachm of bisulphide of carbon, were given, in addition to the internal administration of iodide of potassium and kairin. The diarrhœa diminished, the stools rapidly lost their offensive character, the gurgling disappeared from the iliac region, and the patient made a good recovery.—*Lancet*, March 23, 1889.

Operative Treatment of Prolapse of the Rectum.—Dr. J. Mikulicz, of Königsberg, describes in the *Archiv für klin. Chirurgie*, vol. xxxviii., his method of dealing with

prolapsed rectum, and puts on record seven cases in proof of its safety and efficacy. Of prolapse of the rectum there are, it is pointed out, three forms. The first and simplest of these, prolapsus ani, is a mere ectropium of the mucous membrane of the rectum in which the other coats of the gut, especially the muscularis, are seldom involved. In the second form, that of true prolapsus recti, the protrusion consists of all the coats of the intestine and, like the invaginated portion in intussusception, presents on section two tubes of intestine one within the other, and in contact by their serous surfaces. The third form, to which the name is given of prolapsus coli invaginati, is really intussusception of some part of the colon, and may be readily distinguished from the other forms by the fact that the external layer is not fixed to the anus, and that the finger can be passed into the rectum by the side of the protruded mass.

In cases of chronic prolapsus recti, with ulceration and gangrene of the exposed mucous membrane, and a persistent tendency to further protrusion, excision of the protruded portion of the intestine is, according to Mikulicz, the most suitable treatment. The limited excisions devised by Dieffenbach and Dupuytren are, it is stated, often useless and do not guard against prolapse, and cauterization, though a milder proceeding, is still not free from risk and may cause stenosis of the anal portion of the gut. Partial excision and cauterization will, it is true, result in contraction of the relaxed and softened sphincter, and of the immediately superjacent portion of rectum, and the constricted and rigid extremity of the gut will, if the case be a mild one, resist further protrusion from above; but in too many instances the *vis a tergo* overcomes this resistance and the cicatricial tissue yields sooner or later to renewed prolapse of the rectum. It is necessary, he states, to shorten the elongated and displaced rectum, and, in correspondence with this indication, to resect a large portion of the prolapse. This is held to be the most rational course in all old cases of prolapsus recti, and particularly after relapse.

The operation described in this paper was first performed with success by Nicoladoni, and resembles in some respects one advocated by Esmarch, in which, before resection, the upper part of the prolapsed gut is fixed tightly by ligature to a bougie introduced into the rectum so as to prevent any exposure of the peritoneal cavity. Mikulicz, after having passed two sutures through the free lower end of the prolapse, in order to stretch and fix in required positions the gut, makes a transverse incision through the anterior layer of the prolapsed mass, about half an inch below the anal margin. The inner tube of the prolapse having been thus exposed, the serous margins of the outer and inner layers are brought together by sutures, in order to shut off the peritoneal cavity. The inner tube having been divided transversely along the whole length of the outer incision and the intestinal canal opened, the cut edges of the inner and outer tubes are then fixed together by a second row of sutures. The posterior surfaces of the tubes are then divided and sutured in like manner, and the whole of the prolapse thus detached. In most cases the peritoneal sac does not descend between the layers of gut behind, the space being usually occupied by mesocolon which contains numerous vessels. In this operation Mikulicz insists on the use of silk in preference to catgut for the material of the sutures.—*Lond. Med. Recorder* March, 20, 1889.

Tait's Operation for Ruptured Perineum in Russia.—In the *Meditzinskoïe Obozrenïe*, No. 16, 1888, p. 287, Dr. Vladimïr v. Üspensky, of Moscow, published ten cases of perineoplasty for partial perineal rupture, in which he performed Lawson Tait's operation slightly modified by himself and Professor Snegïreff. The modification consists in (*a*) the formation of a regular elongated quadrangular wound by making a semilunar or curved, instead of a straight, transverse incision into the remnants of the perineum; and (*b*) in inserting sutures through the skin instead of through the raw surface, at some distance from the cutaneous edge. In no case was there more than a trifling amount of bleeding. The operation, including the insertion of sutures, only occupied from five to twelve minutes. The sutures were removed between the eleventh and fourteenth day, when the wound was invariably found healed by first intention. The results left nothing to be desired. A solid and generally perfect perineal body was obtained in every one of the cases. Dr. Üspensky emphatically declares that Lawson Tait's method is the best in every respect, its advantages being extreme simplicity, rapidity of performance, and uniformly excellent practical results. He believes that it will supersede all other perineoplastic operations, at least in cases where no special indications are present, such as excessive tenderness of scars, demanding excision, etc. The same opinion was expressed by Professor v. F. Snegïreff at a meeting of the Moscow Obstetrical and Gynecological Society.—*British Med. Journal*, March 30, 1889.

Treatment of Jaundice from Retention.—Dr. Le Gendre gives in the *Concours Méd.* the following treatment for this affection:

1. *Absolute milk diet*, consisting of five pints of milk taken pure or in an alkaline medium, in quantities of eight ounces every two hours.

2. *Intestinale antisepsies*, for which the following powders are to be taken:

℞.—β Naphthol (finely powdered) . 23 grains.
Salicylate of bismuth . . . 15 " —M.

Divide into ten powders; one to be taken every time that some milk is taken.

3. *Sponging the body* every morning and evening with cold water, to which the following has been added:

℞.—β Naphthol . . . . 1 part.
Water . . . . . 5000 parts.

Heat and dissolve, filter and allow to cool.

4. *Purgatives* of a sodic base (such as sulphate of soda, etc.), to be taken every third day.

5. *Inhalations of oxygen*, or air-baths, if circumstances permit.

Although insomnia is often a troublesome symptom in this affection, it is best not to give any hypnotics, especially not morphine. Sleeping can frequently be induced by calming the troublesome itching with the following lotion:

℞.—Sublimate } āā 5 grains.
Chlorhydrate of ammonium }
Camphorated alcohol . . ℥j.
Cherry-laurel water . . . ℥ixss.—M.

—*Revue de Thérapeutique*, March 15, 1889.

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SATURDAY, APRIL 20, 1889.

THE DIURETIC ACTION OF CALOMEL.

ALTHOUGH the medical profession is wont to hold itself as being a little better in respect to general knowledge, at least in the line of its own labors, than many other occupations, it is worthy of remark that almost any one can gain notoriety in its ranks at the present day, simply by turning over the pages of long-forgotten medical lore, and from them resurrecting some remedy, which in the hands of our ancestors often worked for good; particularly is this true if he be so conscienceless as to claim it as his own discovery.

While the diuretic action of calomel is not perhaps an instance of this kind, the practical lesson to be learned is the same. Calomel as a diuretic was one of the most frequently used of drugs for dropsy by Dr. J. K. Mitchell many years ago, and was also a standard remedy in the teachings of Dr. George B. Wood, yet at the present time clinical and experimental studies without number are published upon the subject, as if calomel was as new as erythrophlein. In a manner closely allied to this, Bergeon's treatment of phthisis arose, although our grandfathers for years used sulphur and sulphur waters in the treatment of such respiratory ailments.

Turning aside from the historical to the clinical facts, which, after all, must attract our attention, we find that at present the mass of modern evidence is so greatly in favor of the value of calomel as a diuretic that it cannot be denied by the most conservative. The researches of JENDRÁSSIK (*Arch. für klin. Med.*, Bd. 38, 1885, p. 499), of Wolf (*Virchow-Hirsch Jahresbericht für* 1887), and an innumerable number of others, have all reached results which, as a general rule, are singularly given to praise.

In the *Centralblatt für die gesammte Therapie*, for February, 1889, PAL, of Vienna, gives us still another report of a favorable character. Like many of his predecessors in this field, he has simply used calomel in cardiac dropsy, or more rarely in renal dropsy, and in the accumulation of fluid which results from cirrhosis of the liver. The results obtained by him are given in tabular form with the reports of the cases, and are as follows: In case number one, the man, who was twenty years of age, had a history of rheumatism in early life followed by cardiac disease which manifested itself in the course of about one year. Later he became confined to bed and was somewhat improved for a short time in his general condition by the use of digitalis. Finally, pain in the region of the liver, cardiac palpitation, dyspnœa, and anorexia asserted themselves, and a physical examination showed an icterode conjunctiva, a marbled skin, slight œdema of the feet and a double mitral murmur. The liver and spleen were both enlarged. Digitalis again acted favorably, but, nevertheless, calomel was soon added, opium being given to prevent intestinal overaction. As Pal's table shows with great clearness, the use of the mercury increased the urinary flow every time it was given, and also that the stoppage of the calomel, leaving digitalis to act alone, decreased the urinary flow to one-half or one-third that caused by calomel. Considering the increased quantity of liquid given off, the specific gravity remained fairly high, pointing to the presence of an increased amount of solids. Along with these changes there was marked general improvement.

The second case is illustrative of the fact that this calomel treatment is of very much less value in those cases in which there is degeneration of the heart muscle and cardiac infiltration. The patient was a man of forty-seven years, in whom cardiac palpitation, dyspnœa, and swelling of the feet with icterus was present, associated with loud murmurs at the apex and aortic cartilage, and who had an enlarged spleen and liver and albuminous urine. Calomel was used with little result. The man died and at the autopsy there was found aortic insufficiency and dilatation of the right heart. There was also universal dropsy and bilateral hydrothorax with chronic

endarteritis and occlusion of the coronary arteries. It is useless for us to go on detailing the states of the patients treated by Pal by calomel. Those who are especially interested should go to the original paper for further details. Suffice it for us to state that he gives us a profusion of tables showing, perhaps, even more forcibly than we have done, that the mild chloride of mercury is a powerful diuretic. Thus, in one instance in which the quantity of urine was only 800 c.c. in the twenty-four hours under the influence of the acetate of potash, calomel in small doses increased it in the course of four days up to 10,700 cubic centimetres, there being simultaneously a decrease and disappearance of the albuminuria which had been present.

Studies such as these are worthy of record and careful reading, as well as trial, and we are only sorry that more evidence of how calomel acts under these circumstances is not forthcoming. It is to be remembered, of course, that whenever any sign of intestinal disturbance is produced by the mercury opium should be used, although in any event the quantity of calomel given should be below that which is capable of causing ptyalism.

DR. SAMUEL W. GROSS.

THE death of Dr. Gross, on the 16th inst., leaves a sad blank in the profession of Philadelphia, and is a grievous loss to American surgical science, of which, as his father before him, he was a distinguished ornament. To be thus struck down in the prime of life, in the midst of his work, and so full of zeal and energy, accentuates the shock of his death and deepens the sense of our bereavement.

He well maintained the strong reputation of his name, and every year brought him increasing fame as a thinker and writer in surgery. Carefully prepared, judicial, and systematic, his contributions were of solid worth and will have an enduring place in our literature.

As a teacher Dr. Gross had reached an enviable position, and his didactic and clinical lectures were models of clearness and precision. Of him, as of his father, it may be written, he taught principles—no slight merit in these days of devotion to technique.

Physically well endowed, there were in his nature exceptional qualities of mind and heart—a genial *bonhomie* and frankness and a warm, hospitable disposition which made his home the natural rendezvous of strangers in Philadelphia—qualities which now leave mourning an exceptionally wide circle of friends in this country and abroad.

To his family and colleagues we extend our warmest sympathies in their affliction. In our next issue we shall give a full notice of his life and work.

MEDICAL EDUCATION OF WOMEN.

FOR some years McGill University, Montreal, has had a well-equipped Arts Department for the education of women, and not a few ladies have succeeded in taking the degree of B.A. The women now ask that the Medical Faculty admit them to their classes and are stirring up their friends to bring this about. The Medical Faculty object to mixed classes, and although not very enthusiastic on the subject, hint that a very large endowment ($400,000 to $500,000) might induce them to consider the subject of separate education. The ladies interested are busily engaged in collecting an amount of money for this purpose, and so far have been fairly successful. Public meetings have been held to promote the scheme, and the press is strongly in favor of "giving the ladies a chance." There are already two colleges in Canada for the medical education of women, viz., one in Toronto, and one in Kingston, Ont., and many medical men think these are quite capable of supplying the immediate needs of the country.

A PRELIMINARY programme of the General Sessions of the American Medical Association, Newport meeting, has just been issued. The President, Dr. W. W. Dawson, of Cincinnati, will deliver the Presidential Address, on the first day, Tuesday, June 25. The Address on Medicine, by Dr. William Pepper, of Philadelphia, will be delivered on Wednesday; the Address on Surgery, by Dr. P. S. Conner, of Cincinnati, on Thursday; and the Address on State Medicine, by Dr. W. H. Welch, of Baltimore, on Friday.

THE Shelby County, Indiana, Medical Society held a most successful anniversary meeting at Shelbyville, on April 8th. It was largely attended, and there were present several prominent medical men from a distance.

THE Third Congress of the German Society of Gynecology will be held at Freiburg, June 12 to 14, 1889, at the Woman's Clinic of the Grand-Ducal University. The following are the subjects for discussion: Autoinfection; referee, Dr. R. Kalten-

bach, co-referee, Dr. H. Fehling. Treatment of Extra-uterine Pregnancy; referee, Dr. Werth, co-referee, Dr. G. Winter. In addition a number of valuable papers will be read.

An International Congress of Otology and Laryngology will be held at Paris from the 16th to the 21st of September, in the palace of the Trocadéro. Professor Duplay is President of the Committee of Organization, but all communications should be addressed to the Secretary, Dr. Loewenberg, Rue Auber, 15, Paris.

A considerable number of English and American physicians having accepted the idea of a Continental Anglo-American Medical Society, a meeting was held in Paris on March 14, 1889, at which the following gentlemen were present: Drs. Barnard, Boggs, Bull, Chapman, Darcus, E. Dupuy, Faure-Miller, Hon. A. Herbert, Jennings, Linn, Loughnan, Murray, Nachtel, Warren-Bey, and Webb. In addition to the above Paris practitioners, about forty from other places on the Continent have written to express their approval of the project, and many more are expected to send in their adhesions. At this meeting it was resolved to form a society under the above title, limited to British and American physicians residing abroad, the first general meeting to take place in Paris, on Monday, September 30, 1889, to be followed, in the evening, by a public dinner.

An Executive Committee was appointed to study the scope of the Society, to draw up articles of Association and By-Laws, and to submit suggestions, all to be voted upon at the first general meeting in September.

It was further decided to invite a certain number of distinguished members of the profession to become *Honorary Presidents* of the Society. The following names were proposed: Sir Spencer Wells, Sir Joseph Lister, and Dr. Richard Quain, for England; Drs. Fordyce Barker, Weir Mitchell, and J. S. Billings, for America, and Professors Ball and Brown-Séquard for Paris.

The following gentlemen compose the Executive Committee: Drs. Hon. Alan Herbert, Faure-Miller, Chapman, E. Dupuy, Barnard, and Linn, the last named being the Secretary.

At the semi-annual conversational meeting of the Pathological Society of Philadelphia, to be held next Thursday evening, 25th inst., Prof. Roswell Park, of Buffalo, will read a paper entitled "A Study of Acute Infectious Processes in Bone."

We regret to learn that Dr. R. C. Word, of Atlanta, editor of the *Southern Medical Record*, lost, by a disastrous fire on March 16th, his home and its contents, including his lecture notes and the MS. of a work nearly ready for the press, together with other valuable papers, the accumulation of years. We are sure that we are echoing the feelings of his colleagues of the medical press in expressing the warmest sympathy for Dr. Word in his great loss.

Mrs. Turner Sargent, daughter of Dr. Oliver Wendell Holmes, has bequeathed $5000 to the Massachusetts General Hospital, $25,000 to Harvard College for the general purposes of the University, and the further sum of $10,000 as a memorial of her father, the income to be applied to the use of the anatomical department, under the direction of the professor of anatomy. In the event of her brother, Judge Holmes, leaving no issue, she further bequeaths $25,000 to the Boston Medical Library Association.

George Tiemann & Co., of New York, have just published *The American Armamentarium Chirurgicum*, a handsomely printed quarto volume of 862 pages, being a descriptive illustrated catalogue of surgical instruments and appliances, with a brief account of their uses and prices. The book must prove extremely valuable to the practising surgeon. It can be obtained, we are informed, upon the payment of a small sum, about covering the cost of binding.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, March 27, 1889.

The President, W. W. Keen, M.D., in the Chair.

Dr. L. W. Steinbach reported the following

CASE OF NEPHRECTOMY.

July 17, 1888, Mrs. Anna H., forty-four years old, came to the Polyclinic, complaining of indigestion, frequent vomiting of food or of mucus, attacks of palpitation of the heart, and loss of flesh. One week before attention was directed to an induration in the right hypochondriac region.

She considered herself in good health until eleven years ago, when she became dyspeptic. Five years ago she noticed a lump in her abdomen, and until one month ago she was able to attend to her household duties. She complained of headaches and constipation, and had not

noticed any sediment in or discoloration of the urine, nor could she recall having suffered with pain that would indicate the passage of a biliary or renal calculus. Pulse, respiration, and temperature normal, looked anæmic, complexion muddy, body emaciated. Inspection showed a prominence in the right lumbar region, whilst percussion and palpation revealed the presence of a tumor extending from the lower border of the ribs vertically for about seven inches, and, laterally, occupying the centre of the lumbar region to the extent of three inches. Percussion dulness was continuous with that of the right lobe of the liver. The tumor was freely movable below, and felt through the thin abdominal walls imparted the sensation of a bag filled with small pebbles. Believing that the case was one of a gall-bladder filled with calculi, and fearing lest manipulation would cause rupture of the cyst, he desisted from further palpation, and directed inquiries toward finding other symptoms of biliary obstruction. He drew off the urine with a catheter and submitted it to a chemical analysis, which showed the absence of albumin and the presence of some bile-pigment. No particulars of the nature of the stools could be obtained. He recommended a cholecystotomy.

On July 26th, an incision three inches in length was made in the right linea semilunaris, over the most prominent portion of the tumor, beginning at the border of the ribs and dividing the abdominal muscles and peritoneum; the apex of the tumor was reached without encountering any of the abdominal viscera. The calculi could now be felt more distinctly; an incision was made, and a few pieces of calculus removed, which, however, did not correspond in shape, color, and general appearance to calculi of biliary origin, and the forceps grasped a stone evidently of large size and immovably fixed.

The idea of impacted gallstones was dispelled—the tumor was a kidney.

Fear of rupturing the normal gall-bladder vanished, the lips of the abdominal incision were drawn apart more freely, and brought to view the margin of the right lobe of the liver and a normal gall-bladder in normal position. Further examination showed the tumor to be the right kidney distended by several calculi of different shapes and sizes. The organ was twisted by being turned upon its vertical axis from behind forward and to the left, and upon its horizontal axis from above downward and from behind forward, so that the dorsal surface and the upper end presented at the anterior abdominal wall.

It was at once decided to remove the kidney, a superficial examination indicating the existence of a kidney on the left side. The pedicle, consisting of ureter, artery, and vein, was ligated *en masse* with a silk cord, the kidney cut off, the abdominal incision closed with sutures and dressed. The patient, after half an hour, came from under the influence of the anæsthetic. Three hours after the operation the bladder was catheterized, but no urine obtained. Catheterization was repeated at intervals of six hours during the two succeeding days with a like result. The temperature at 8 o'clock P.M., six hours after the operation, was 101° F., falling to 99° on the following morning, gradually rising to 103° toward evening, and falling in the same manner to 100° on the morning of July 28th. She slept for a few hours during the night after the operation, and after a small dose of morphia was given without his knowledge, took moderate amounts of nourishment and some stimulants. About noon of the third day began to complain of soreness all over the body, became irritable and restless, but continued to take milk and whiskey. She passed no urine up to the time of her death, which occurred at 6.20 P.M., fifty-four hours after the operation. A post-mortem examination was not held.

DR. J. H. GROVE then presented the specimens from

A CASE OF MALIGNANT TUMOR INVOLVING THE KIDNEY AND SUPRA-RENAL CAPSULE.

The appearance of the tumor indicated that it sprang from the supra-renal capsule; extended to and involved the left kidney, and that the supra-renal capsule was the seat and origin of a large cyst which was filled with grumous fluid and fatty disintegrated *débris*.

DR. W. W. KEEN then reported

A CASE OF NEPHRORRHAPHY

(see page 431),

and also a case of

UNCOMPLETED NEPHRECTOMY.

G. M. C., aged sixty-eight years. On April 6, 1886, had an attack of retention of urine. Violent expulsive efforts forced out a clot. The bleeding continued two or three days. With this he had pain in the right lumbar region. A month later another similar attack occurred, amounting to a distinct renal colic. Other attacks occurred in July, 1886, and in January, September, and November, 1887. After the last one, for several weeks he had repeated and nearly continuous hematuria with a sensation of heat in the right lumbar region, and he lost strength and appetite. January 14, 1888, he was taken extremely ill with pleuro-pneumonia and septicæmia. Both legs were attacked with phlegmasia. The dulness in the right kidney was increased, but no pus was found in the urine either then or at any other time; neither were any symptoms located in the bladder. This illness lasted about two months.

In May and June of 1888 he again had attacks of hematuria, and from September 17 to October 31, 1888, he has had nine attacks, passing as much as six or eight ounces of blood, he thinks, in some of the attacks. He has never passed any calculus. In the interval between the attacks the urine was clear. No cause can be assigned for the attacks; not uncommonly they have come on while he was lying in bed. He states that the right kidney is now the seat of marked aching pain.

Condition before operation.—Bladder was sounded, but no stone was found. Prostate not much, if at all enlarged. Renal dulness on the two sides equal and normal. Right kidney tender. Two species of urine were furnished, one with a large bloody sediment, but without clots, and the other clear and acid, sp. gr. 1022; very slight amount of albumin. Microscopical examination showed no crystalline elements, a few blood disks, granular matter, and a large number of bright fatty-like small globules. Dr. Watson, the patient's physician, had never found any albumin except just after the attacks of hematuria, nor has he ever seen any cast. It was decided to explore the right kidney, either for stone or possibly for cancer, and either to remove the stone or the kidney, as might seem best.

Operation, Nov. 3, 1888.—An oblique incision was made just to the right of the erector spinæ. The lower end of the kidney appeared normal. The finger detected a rather

sharp irregularity deep in the substance of the kidney. The moment it was pressed on we were convinced that it was a stone. A needle was then passed into the kidney, and the point of it grated with great distinctness against the supposed stone. The kidney was now seized with a volsella, and was loosened from the surrounding tissues in order to obtain freer access to it. This was followed by two results: First, very abundant, indeed very alarming hemorrhage, from large veins that were so concealed under the last rib that they were seized with great difficulty, even after the rib was well raised, and when seized they were so friable that the ligatures would not hold. The second result was to disclose the fact that while the small portion of the kidney first discovered was normal, the rest of it was irregular, nodular, and friable, and evidently the seat of a malignant growth. Accordingly, it was determined to remove the kidney, if possible. It was rapidly detached from its capsule by the finger, but it was so anchored internally at the hilum that it could not be brought to the surface, in spite of the fact that he got his entire hand into the cavity of the capsule.

Having proved the impossibitity of removing the kidney by the loin, he had debated the question of attempting it by an anterior incision, but as the difficulty of removal was not the size of the kidney, but the adhesions at the hilum, he concluded not to attempt an operation by this route, as he felt convinced that it would result in the patient dying upon the table. The hemorrhage had been exceedingly profuse, not from any one particular vessel, or from rupture of the vessels of the hilum, but from every point in the kidney and in the capsule the moment they were separated. This hemorrhage was checked by thoroughly packing the wound with sublimate gauze. The patient was put to bed. He became conscious and recognized his family, but died from exhaustion three and a half hours after the operation.

Autopsy.—In order to determine whether the kidney could have been removed more readily by the anterior incision, Dr. Keen made this attempt as the first step in the autopsy. An incision was made in the right linea semilunaris, which gave no more room for the removal of the kidney anteriorly than posteriorly. The ribs projected so far downward that, in order to reach the kidney, it was necessary to insert his entire hand up to the wrist. The kidney lay far up under cover of the ribs, and was as inaccessible from the front as from the back. It was so thoroughly anchored in its position that to loosen it from its bed required force that would have been wholly unjustifiable during an operation, and would have resulted in rupture of the vessels and in immediately fatal hemorrhage. It would not have been possible to reach and tie the vessels in such an inaccessible position. When removed, the kidney was found to be enlarged, nodular, and distinctly cancerous. The left kidney and other abdominal viscera were normal.

On section of the kidney there were discovered some calcareous vessels and one or two points of calcification of the other tissues. Microscopical examination showed that it was an intermediate form between scirrhus and encephaloid, with a decided preponderance in the greater part of the organ of the latter form of the disease.

The diagnosis. This lay most likely between stone in the kidney and cancer of the kidney. Although it seemed unlikely that stone should exist without producing pyelitis, and, therefore, showing some pus in the urine, yet Dr. Keen had known of more than one case of both stone in the bladder and in the kidney in which the urine contained no pus. The repeated hematuria looked very much toward malignant disease, but the kidney was so under shelter of the ribs that it was impossible to detect any tumor, and the dulness was not markedly increased. The enlargement of the kidney was chiefly toward the hilum, and so the dulness posteriorly was little greater than normal. Mr. Henry Morris states that of 30 cases of cancer of the kidney, found in 2610 autopsies, 25 were secondary, and only 5 were primary. The present specimen is undoubtedly a primary malignant tumor, and is, therefore, a rare form of disease.

In the surgical aspect of the case there are two points of interest: First, the needle test for stone. When the kidney was exposed to view, the only healthy portion of it remaining was first seen. Deep under this an irregular, hard mass could be felt, which might easily be a stone. Puncture by the needle convinced us that it was such. Examination of the kidney after death showed us that no stone existed, but that what was felt by the point of the needle was either a calcareous vessel or a calcareous degenerative mass against which the point of the needle grated. It gave precisely the same sensation as a stone would have done. This possible error seems very unusual, and he had never seen it noticed.

Secondly, the advantages of the lumbar or of the abdominal route for removal. As the operation was undertaken primarily for exploration, and no tumor in any sense was discovered, he was clearly of opinion that the lumbar route was the proper one to select. The attempt made at the autopsy shows that the kidney could not have been removed any more readily by the abdominal than by the lumbar incision. The peculiar situation of the mass in question, and the low position of the ribs, resulted in the curious fact that whilst the space between the last rib and the crest of the ilium was only two fingers in breadth, yet the oblique incision here of four inches was long enough for removal, and it could have been still further prolonged anteriorly, if necessary; whereas, the vertical incision from the rib to Poupart's ligament was absolutely limited to four inches, and the kidney was certainly no more accessible by this route than by the other. The removal of the kidney was practically impossible by either method. The inflammatory attachments —especially around the hilum and the great vessels of the kidney—required an amount of force that would have been unjustifiable during life.

Dr. DeForest Willard thought that, as a rule, the anterior median incision offers better opportunities for diagnosis, for examination of the other kidney, and for safe removal. In cases where a stone is suspected, or the presence of pus is probable, the lumbar incision is certainly proper; the operation may be simply a nephrotomy and not a nephrectomy, and then we have better drainage. In simple purulent kidney, it is better to secure drainage and not remove the kidney. The results, so far as life is concerned, are better by this method. In tuberculous kidneys, the results of nephrectomy have been more satisfactory. In Bardenhauer's statistics,[1] numbering some thirty-five nephrectomies, where twenty-five were for purulent kidney of various forms, the mortality

[1] Berlin klin. Woch., October 15, 1888. The Medical News, December 1, 1888.

was not much higher than in ordinary nephrectomy. Out of thirty-five cases he lost ten.

The choice of the incision will depend largely upon the condition of the case, and upon the diagnosis. Many nephrectomies have been performed after the abdominal incision has been made for other purposes, as when the ureter has been cut in laparotomy. He did not know why it was any better, but Schmidt recommended that in such cases the kidney be removed by the lumbar incision. It seemed to him that this would decidedly delay the operation, and would be more likely to cause contamination of the abdominal cavity. He did not think that the results were much more serious in the anterior operation than they were in the posterior.

In regard to the sutures to be employed in *nephrorrhaphy*, he thought that the failures had resulted from the use of catgut. We must employ a permanent suture, which will hold for a long time, and anchor the kidney until it is thoroughly fixed in its position. The question of decubitus is of importance. A month is the shortest possible time in which we can expect any fixation. The use of pads is very unsatisfactory. We are obliged to apply the pad upon the abdominal walls to an organ that lies deep in the loins with the intestines in front of it. We cannot hope to hold it in position by any such means. Therefore the dorsal decubitus should be maintained for a long time.

DR. M. PRICE thought the anterior incision the better, even if after making the diagnosis you close the abdominal incision and remove the kidney by the lumbar method. An incision one and a half inches in length affords ample room for the examination of all the organs. He had twice examined both kidneys through such an opening. In one case of supposed gall-stones, he found the viscera attached to the abdominal wall. After separating them, he examined the kidneys without difficulty, and found them in good condition. In the case where he removed the kidney, he had no difficulty in feeling both kidneys through a small abdominal incision. He thought that if Dr. Keen had made the median abdominal incision, and found the kidneys so seriously diseased, he probably would not have made as great an effort as he did through the lumbar incision.

His impression was that the anterior route was the best for drainage, which, in these cases, is of paramount importance. So much tearing is done in releasing the kidney that drainage for twenty-four or forty-eight hours is necessary, or at least can do no harm. He did not believe that any drain answered its purpose so well as one that can be cleaned by the attendant or nurse. The best method to stop oozing of blood is to keep it cleaned away. Keep no blood in contact with the bleeding vessels. He believed that morphia had a tendency to cause suppression of urine. It also lowered the vitality and assisted in killing the patient. He should not think of using morphia in abdominal cases unless the patients were dying. Where morphia had been used in surgery, and especially in abdominal surgery, he had had cause to regret it.

DR. JOHN B. DEAVER had operated both by the abdominal and lumbar method. He considered that the anterior incision was preferable in cases of solid growths, particularly where they have reached any size. We run greater risks in attempting to break up the adhesions to the capsule by the lumbar incision, where we cannot see what we are doing, than we do through the anterior incision. The proper course is to go through the linea semilunaris. This brings us nearer to the organ, and gives a better opportunity to work to the outer side of the colon, which is important, as the bloodvessels are in relation to the internal layer of the meso-colon, and not with the external layer. In cases of liquid accumulations in the kidney, he did not think that we operated with quite as much facility anteriorly as posteriorly. The lumbar incision affords better opportunities for drainage under these circumstances, but drainage can be satisfactorily accomplished by the anterior method by the glass drainage tube. The abdominal incision affords us better opportunities for the examination of neighboring organs. For purposes of diagnosis it is more satisfactory than the operation through the loins.

There is no doubt that in nephrorrhaphy the proper form of suture is antiseptic silk. He knew of one failure resulting from the use of catgut. It is probably impossible to pass sutures through the capsule of the kidney without also involving the substance of the organ, yet he thought that if we could avoid wounding the kidney it would be better. He had no doubt that the appearance of albumin in Dr. Keen's case after the operation was due to the sutures.

The question of the removal of solid growths of the kidney is largely influenced by the age of the patient. It is almost useless to operate for carcinoma of the kidney in early life or in late life, so that the middle period offers the best chances for a favorable result in these cases.

DR. THOMAS R. NIELSON said that the statistics of the removal of the kidneys for malignant disease are so unfavorable that any operation seems to be almost hopeless; nevertheless he did not think that, in individual cases, this should be a contra-indication if the operation seems to be justifiable on other grounds. In children, the statistics of Dr. Gross, in 1885, were, that in thirteen operations only four recovered from the operation, and these subsequently died from return of the disease elsewhere.

DR. JAMES TYSON said in reference to the etiology of floating kidneys, that he had been compelled to conclude that in the majority of instances it is congenital. He had seen most typical instances of floating kidney in men, and had seen it more frequently in women who have never borne children than in those who have had children. Even in those cases where it is supposed to have been caused by accident, that in all probability the condition has been congenital, and, if anything, only exaggerated by the fall. In regard to the treatment of floating kidney by the use of pads, etc., he had never seen any advantage result from such devices.

DR. J. M. BALDY said that there is great importance in drainage in kidney operations. A tube that can be kept clean, is the drainage tube *par excellence*—the glass tube is such.

In one case of malignant disease, in which he witnessed the removal of the kidney by the abdominal incision, the hemorrhage not being entirely controlled, the peritoneal cavity was entirely closed off from the bed of the kidney by stitching the cut edges of the peritoneum together; prior to this, however, a counter-opening was made through the muscles of the back, and thus good drainage secured. The patient made a good recovery.

Dr. John B. Roberts referred to a case of cure of movable kidney without operation. A boy, seven years of age, was referred to him four years ago by Dr. M. O'Hara. At irregular intervals the patient was seized with severe pain in the left side of the abdomen, and with this there was the appearance of a tumor in the hypochondrium and total suppression of urine. Various theories had been held to explain the condition. The only conclusion that he could reach, although this was not concurred in by Dr. O'Hara, was that the boy had a floating kidney, and that at the times of the paroxysms the ureters became twisted, causing the suppression of urine and the intense pain. The boy never had any pain or trouble with the urine except when the tumor was felt. At his suggestion Dr. O'Hara had made a pad which pressed against the left hypochondrium. This was worn for a short time. The boy then passed from his notice, but he learned a few years ago that he had perfectly recovered. There is, of course, in this case an element of uncertainty in regard to the diagnosis. When he looked into the literature of this subject, he was surprised to find how much stress was laid upon the possibility of the ureters becoming twisted, and the flow of urine being interfered with.

In connection with the question of the lumbar incision he referred to an accident which he had in an attempt to explore the kidney for a supposed renal calculus. After making the incision down to the kidney, he determined to enlarge it a little. The diaphragm hung down in a fold and was readily seen. He made the incision a little longer in the upward direction, and made a minute perforation in the diaphragm where it is attached to the spinal column. There was a loud whistle as the air rushed into the pleura. He put in a suture and closed the opening, and no harm was done; but for a few days the patient insisted that the bandage was too tight, because he could not breathe freely. The pain which the patient had felt disappeared after the operation, although no stone was found. He went home before the wound had closed, and a number of months later died of some obscure disease.

It is important to recollect, when operating close to the vertebral column, that the posterior attachment of the diaphragm near the middle line extends further down than might be realized from watching its loose muscular curtain exposed in the wound.

Dr. W. W. Keen thought that there was no doubt that in the case of a large tumor of the kidney, particularly a large solid tumor the size of which cannot be diminished by tapping, the position taken by several of the speakers is correct—that the anterior incision is the proper one. Where there is a small growth, or a stone in the kidney, or the operation is an exploratory one, he could not think that the anterior incision is the best. Statistics certainly show that the lumbar incision is attended with much less risks than the anterior. Where there is no reason to suppose that an unusual amount of room will be required, he thought the lumbar incision is the proper one to employ.

It has been also suggested that possibly the anterior incision in the present case of nephrectomy would have given so much information that he should have decided not to operate. He did not think that he should have reached any such conclusion, for it was not the character of the growth, but the adhesions at the hilum that interfered with the removal of the organ, and these could not have been determined until the operation was in progress. He thought that it would have been as impossible to remove the kidney by the one method as by the other. He had the pleasure of seeing Dr. Steinbach's case just prior to the beginning of the operation, and he certainly was convinced that it was a case of enlarged gall-bladder with gall-stones. The slightest movement caused a grating of one stone upon the other. The tumor was in the position of the gall-bladder. He never before saw a kidney so displaced. The long axis, instead of being vertical, lay in an antero-posterior position, and the upper end of the kidney occupied precisely the position of the gall-bladder. The mistake in diagnosis, under these circumstances, was very natural.

NEW YORK ACADEMY OF MEDICINE.

Section on Public Health.

Alexander Hadden, M.D., in the Chair.

Dr. C. G. Currier read a paper on

THE EFFICIENCY OF FILTERS AND OTHER MEANS EMPLOYED TO PURIFY DRINKING-WATER, BACTERIOLOGICALLY CONSIDERED.

(See page 425.)

Dr. T. Mitchell Prudden said that a good deal of objection had been made to the work of bacteriologists, and largely on the ground that it had been found very difficult by them to detect the typhoid bacillus in drinking-water. It was purely a technical matter, and the trouble was the difficulty of distinguishing the typhoid bacillus from other bacilli which closely resembled it. This applied principally to large bodies of water, since in small bodies of water the typhoid bacillus could be much more readily recognized. Dr. Prudden then spoke of the serious epidemic of typhoid fever which occurred in Providence, R. I., in the early part of the winter, and to which reference had been made in the paper. It seemed that last autumn typhoid fever was prevalent in a village of French Canadians situated on the river from which the water-supply was derived, and about half a mile above the city. The sewage of the village did not pass directly into the river, but the inhabitants emptied the dejections from typhoid fever patients into privy vaults and also upon the banks of the river. In November there was an unusually severe rain-storm, which washed a large amount of material from the banks into the stream, and early in December the death-rate in Providence rose to 127. Notwithstanding the fact that the flow of water amounted to over seven million gallons per hour he was able to detect a few typhoid bacilli, together with a large number of ordinary water bacilli, in the charcoal filter referred to by Dr. Currier. It consisted of an outer and inner metallic ball, and was so arranged that the water could pass around the charcoal, while there was an orifice half an inch in diameter from which the water escaped.

Dr. John C. Peters said that it seemed that to-day the water of both Berlin and London was more free from contaminations than that of New York. The filter-beds employed in purifying the water-supply of London were mostly of sand, the efficacy of which Dr. Currier had spoken of in the paper. Dr. Peters said that during

the past four years he had paid considerable attention to the condition of the Croton water-supply, and he had been glad to learn that the State Board of Health had undertaken the work of keeping it as pure as possible in the future. At present the amount of contamination that got into the water was very great; yet it was a fact that during the past season there had been a smaller number of cases of typhoid fever reported in the city than for a long time before.

DR. R. C. M. PAGE said that for a number of years past, up to last summer, he had used in his house a globe filter about three inches in diameter, containing clean sand. At first tin was the material used in its construction, but afterward copper was substituted for it, as the tin soon rusted out. Last summer, in Paris, he met with the filter spoken of by Dr. Currier in the paper, which he now exhibited, and which he said was the only filter which had really ever proved satisfactory to him. It somewhat resembled the Pasteur filter, and consisted of a large disk of porcelain backed by carbon. It allowed the water to pass much more quickly than the Pasteur filter, and two quarts an hour could be obtained from it. He thought that the water from such a filter was better than distilled water, as a rule, since one could never feel sure that the latter, as ordinarily supplied, was freshly distilled.

DR. J. LEWIS SMITH said that from recent experiments referred to in a lecture by Jules Simon, of Paris, it would appear that a filter which would arrest the passage of the Klebs-Löffler bacillus, would permit the passage of ptomaines resulting from microbic action. This seemed to him a very interesting point.

DR. AGRAMONTE inquired if Dr. Currier had ever made an examination of the Apollinaris water which was so largely used at the present time, and so highly recommended for its purity.

DR. CURRIER stated that he had not examined this particular water.

DR. JOHN C. PETERS said that he had reason to believe, on good authority, that not one-half of the Apollinaris water put upon the market was derived from the Apollinaris Spring. A considerable proportion of it, at least, was artificially prepared at Antwerp, where this could be done very cheaply.

DR. CURRIER inquired if any of those present could inform him what was the effect of distilled water upon children and youth, particularly as regards the lack of salts, of which the water was deprived by the process of distillation.

DR. H. JACOBI said that the salts in drinking-water that could be expected to be beneficial to the system were the chlorides and phosphates. The Croton water, when pure, was regarded as a very excellent water, and yet it came very near distilled water in regard to the absence of salts. Some of the hot spring waters in Europe also contained very few salts. He believed, however, that we all suffered more from the presence of salts in drinking-water than from the lack of them. When we did drink hard water, the salts merely passed through the system without being utilized. It was, unquestionably, a fact that children, as well as older persons, took into their systems, from milk and other liquids, and from both farinaceous and animal foods, more salts than they could possibly utilize. Hence he did not believe that distilled water was detrimental to health on account of its lack of salts.

CORRESPONDENCE.

THE VALUE OF RHUS TOXICODENDRON IN RHEUMATIC AFFECTIONS.

To the Editor of THE MEDICAL NEWS,

SIR: The discussion which appeared in the columns of your journal of April 6th, relating to the treatment of sciatica, has attracted my attention, and having been over the ground traversed by most of the participants, I take the liberty of suggesting a comparatively new remedy for the relief of such cases. The hypodermatic use of osmic acid and the glass rod have not come within my personal observation, nor have I had experience with the excision of the affected nerve, nor with stretching, although I have seen the operation. Few persons, however, are willing to submit to this heroic method, since no guarantee is afforded that the results will be successful. The application of the instrument devised and used so successfully by Charles Baunscheidt has frequently been followed by the very best results, but I have not been able to determine just the class of cases in which it would answer. That it is a successful method of applying counter-irritation cannot be denied, and where patients do not object, there are many instances in which it may be used with great advantage, the indications for its use not being confined to rheumatic affections. Some years ago I recall the circumstances attending two cases of sciatica, both of which were operated upon in this way the same day. In one case there was no benefit whatever, while the other was immediately and permanently cured. The first case was that of an elderly gentleman who had been under treatment for some time and whose history will be related as offering us some interesting items in connection with the care of such cases. The second case just mentioned was that of a lady aged about thirty-five, who had been suffering for some months, and was somewhat anæmic, and in addition there was prescribed for her a suitable tonic.

The remedy which I would put forward as a material addition to our therapeutics in the treatment of many of the more obscure manifestations of rheumatism is rhus toxicodendron, a remedy which has attained some local celebrity in different sections of this country, and one too, which has been used by a number of practitioners abroad. The drug is referred to by Dr. Phillips in his excellent treatise, and from this we learn that it was first brought to the notice of the profession in 1798 by Dufresnoy, a physician of Valenciennes. Later, some interesting observations were made upon it by Alderson of England, and in 1836 it was included in the London Pharmacopœia. Dr. Phillips suggests that rhus is valuable in various subacute and chronic rheumatic affections of fibrous tissues, and that the synovial membranes seem to be less amenable than the fibrous structures, such as tendons, ligaments, and fasciæ. He also recommends its use both locally as a liniment, and internally in the later stages of rheumatism, "when the patient suffers still from wearing stiffness, and aching of subacute character in the joints." It is also recommended in the case of incontinence of urine, and is referred to by Drs. Whitla and Brunton in their respective works.

In the vicinity of Chester, a few miles south of this city, it is said to grow in luxuriant abundance, and in

that section its value has attained great, and judging from reports which have been made from time to time, warranted popularity. The poison sumach is also referred to in the latest edition of the U. S. Dispensatory, but not in very complimentary terms, the authors intimating that it is an extremely active poison and probably dangerous to be used as a remedy. Some reports have appeared in current medical literature, but as none of them, so far as I know, covers the ground upon which I have based my treatment, it may be worth while to offer several typical cases by way of illustration of the different directions in which its application may be anticipated, for the relief of diseased conditions. It may be mentioned here that my observations extend over a period of nearly three years, and that my first published communication on this subject appeared in December, 1887.

Case I.—My first case mentioned above was a gentleman, aged about sixty, who had been under treatment two years previously for the same affection, and was relieved by the deep injection of chloroform, together with the occasional application of the faradic current. At the time when he first came under observation he was suffering from cardiac derangement which culminated, from time to time, in attacks of unconsciousness, attended with great physical depression; the real cause probably being due to fatty degeneration with its attending circumstances. Appropriate treatment, however, overcame this disposition, and a year later he complained of sciatica. Although scarcely able to walk, he came to the office every few days, and shortly was able to walk several miles daily without any embarrassment, and the pain in the hip was comparatively easy. The following spring the pain again appeared, if possible, worse than before, and thinking I had exhausted the resources of the pharmacopœia, he consulted an irregular, who faithfully sand-papered him, and afterward applied some stimulating embrocation, which nearly drove him wild; in addition to this, he volunteered the information that his hip was out of joint, and that, although he could put it in place again, the bone refused to stay in position. This style of medication was continued for some weeks, and the patient then consulted an electrical physician, who guaranteed to effect a cure within a reasonable time, but to make the matter more binding, he took a retainer of twenty-five dollars in advance. Electrical treatment was continued for about two months, but without that relief which the patient had expected, and the expense proving a serious objection, it was discontinued.

This patient again consulted me in the September following, some time after the other methods of treatment had been discontinued, and was placed upon the salicylate of sodium, together with strychnine sulphate gr. $\frac{1}{30}$ after meals, and after a time it was deemed advisable to resume counter-irritation, but the patient strongly objected to the injection of chloroform, although he was willing enough to have a blister. Instead, however, Baunscheidtismus was adopted, but without any apparent benefit. Later on, a thapsia plaster was applied, and seemed to serve the purpose for the time being, but the pain was soon as severe as before.

During the interval of relief afforded by the thapsia plaster treatment had been discontinued, so that at the expiration of two weeks, it may be said, this patient was wholly free from the influence of any medication whatever, and it was at this period that rhus was ordered, one drop of a solution of the tincture, three or four times daily, and in less than a week the sciatica had yielded. The best part of the story is, that now more than two years there has been no reappearance, and the extra "lift" on the boot-heel, which had been added to make up for the dislocation, and which was discarded at my suggestion, has never been reapplied.

Case II.—About five years ago, a farmer, aged fifty, consulted me on account of lameness in one knee, from which he had suffered for fifteen years, and was relieved by the local application of an ointment of salicylic acid and lanolin. Two years later, he applied for the relief of lameness of the shoulder, which had developed gradually, and resembled the lameness of the knee which had crippled him for so many years. Here the rhus was exhibited internally in small doses and applied externally as a liniment, and in the course of a few days, the pain and stiffness had disappeared, and the patient has since been free from any of the symptoms of rheumatism.

Case III.—A farmer, aged about sixty-five, was attacked last summer with sciatica of very painful nature, which seriously interfered with his work and his comfort, disturbing his rest at night. In this case there was not a distinct history of rheumatism, but there was a history of general debility, and while we cannot charge rheumatism to that alone, there frequently seems to be a direct association of the two. It is sufficient to add that the patient recovered from the use of rhus alone; no medication preceded it, and none has followed.

Case IV.—Whether varicose veins may be regarded as one of the manifestations of rheumatism, is a question which will require further elucidation, but the fact that the remedies which are useful for the relief of one affection are often of benefit in the treatment of the other, would lead us to suspect some occult relationship. Mr. B., aged thirty-five, unfortunately was subject to both, and when one did not trouble him the other did, so that life became a burden to him. The rhus was taken in moderate doses for a time in the hope of relieving the rheumatism, and his surprise was all the greater when he found that the varicose condition of the veins of the legs was greatly benefited as well as the rheumatism. This patient eventually recovered, notwithstanding the assertion of numerous physicians that nothing could be accomplished for him without an operation, and rhus was the only remedy.

Case V.—The following case is fresh in my mind, the patient, a married woman, aged thirty, having come under observation for the first time about two months ago. At each menstrual period, and at other times when she was compelled to work hard, the enlarged veins of the legs were almost unbearable, and it was almost impossible for her to rest at night. Small doses of rhus removed all pain in the course of a few days, and since that time she has been taking the drops for the most of the time; there has been no pain of any consequence, either during the menstrual molimen, or when she has been working hard in looking after a large family. The puffiness of the vessels has not disappeared, but their appearance is most promising, and it seems as though greater rapidity could be secured by the application of a suitable bandage, provided the patient appreciated the necessity of keeping it in place.

Case VI.—It not infrequently happens that a physician is called upon to relieve attacks of "cramps in the legs," occurring at night, the patient saying that suddenly he is awakened from a sound sleep by cramps, that it is impossible for him to remain in bed, and he jumps out on the floor. Most persons subject to attacks of the kind have provided themselves with a strong cord for such emergencies, and at the moment of attack they coil it around the leg once or twice, then, holding an end in each hand, they give it a short, strong jerk, which is said to relieve the cramp quicker than anything else.

Mr. G. had suffered from this trouble for several years, and came to me for relief. He had a cord, and he also told me that a doctor once gave him medicine which relieved him for a long time. Knowing the value of rhus in relieving the pain which affects varicoses, I concluded that it might be of some value here, and was not disappointed. Treatment was a success, and has been adopted with like results in other cases of the same character.

Case VII.—Mr. B., aged thirty, is a successful and apparently happy farmer, who has been engaged in his present work for the past two years. His health is impaired by reason of rheumatic symptoms, and for the last five years, he says, the same conditions have existed to a greater or less extent. Previous to the time of adopting farming as a business, he had been engaged as a private coachman, and received good wages without having to work too hard or unnecessarily expose himself to inclement weather. He complains of fugitive pains about the larger joints, and says the water causes a very unpleasant sensation when passed from the bladder; there seems to be an unusual sensation of heat, and yet he does not pass a very large quantity, but rather less, he thinks, than in former years. An examination shows that it is normal as to gravity, but the acidity is particularly marked, and when a drop is placed under the microscope the field is dotted with crystals of different varieties, probably uric acid in combination.

This patient had been a faithful patron of the doctors, first the regular, then the irregular, and his last exploit was the submission of his case to a druggist. The last was the worst of all, and he finally rebelled, and concluded to try the whole thing over again. A weak solution of the tincture of rhus was ordered, five drops to be taken three times daily in a little water. When he reached home and compared the small vial containing his medicine with the formidable bottles he had been in the habit of getting, he was inclined to regard the matter in the light of a good joke, but concluded to undertake it, thinking my purpose was to learn if he would take the medicine faithfully. In a few days he reported that he was able to report progress, and the medicine was continued for another week, except that the dose was reduced to twelve drops daily. Now, at the expiration of ten days from the time treatment was first instituted, this patient reports that the trouble with the water has ceased, that the rheumatic symptoms have subsided, and that he feels better than at any time for five years.

In concluding this somewhat lengthy communication, which could be extended indefinitely, as I use the remedy nearly every day, let me suggest to the gentlemen engaged in the discussion to which I have referred, that it would be interesting to have the benefit of their observations regarding the value of this remedy which I have inadvertently called new, which holds out such great promise as a therapeutic agent.

JOHN AULDE, M.D.
4719 FRANKFORD AVE., PHILADELPHIA, APRIL 8, 1889.

NEWS ITEMS.

The Medical Society of the County of New York Sustained.—Judgment has been entered on a final order of Judge Ingraham, of the Supreme Court, sustaining the Medical Society of the County of New York in its expulsion of Dr. James O'Reilly for practices in violation of the Society's code of ethics.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 9 TO APRIL 15, 1889.

BYRNE, CHARLES C., *Surgeon* (U. S. Army).—Promoted Surgeon, with the rank of Lieutenant-Colonel, to rank from March 29, 1889.

MUNN, CURTIS E., *Assistant Surgeon.*—Promoted to Surgeon, with the rank of Major, to rank from March 29, 1889.

By direction of the President, PAUL R, BROWN, *Captain and Assistant Surgeon*, will report in person to Brigadier-General John R. Brooke, President of the Army Retiring Board, at Omaha, Neb., for examination by the Board.—Par. 9, *S. O. 80, A. G. O., Washington*, April 6, 1889.

By direction of the President, the State of Wisconsin is transferred from the Department of the East to the Department of Dakota.—*G. O. 36, A. G. O, Washington*, April 6, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING APRIL 13, 1889.

HEFFENGER, A. C., *Passed Assistant Surgeon.*—Found unfit for duty at present, by the Retiring Board, but not permanently incapacitated for active service, and granted one year's leave of absence for medical treatment.

DU BOSE, W. R., *Passed Assistant Surgeon.*—Detached from the U. S. S. "Constellation," and ordered to the Practice-ship "Jamestown."

LOWNDES, C. H. T.—Commissioned an Assistant Surgeon in the U. S. Navy, March 13, 1889.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING APRIL 13, 1889.

GODFREY, JOHN, *Surgeon*—To proceed to Poughkeepsie, N. Y., on special duty, April 10, 1889.

MEAD, F. W., *Passed Assistant Surgeon.*—To report in person to the Supervising Surgeon-General, April 3, 1889. Detailed as Acting Chief Clerk Marine-Hospital Bureau and Attending Surgeon port of Georgetown, D. C., April 10, 1889.

WHEELER, W. A., *Passed Assistant Surgeon.*—Relieved from duty at Buffalo, N. Y., to assume charge of the Service at Norfolk, Va., April 3, 1889.

DEVAN, S. C., *Passed Assistant Surgeon.*—Relieved from duty as Acting Chief Clerk Marine-Hospital Bureau and Attending Surgeon, to assume charge of the Service at Buffalo, N. Y., April 3 and 12, 1889.

PETTUS, W. J., *Assistant Surgeon.*—Granted leave of absence for four days. April 6, 1889.

STONER, J. B, *Assistant Surgeon.*—To rejoin station (New York) as soon as practicable, April 11, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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VOL. LIV. SATURDAY, APRIL 27, 1889. NO. 17.

ORIGINAL ARTICLES.

ON THE TREATMENT OF THE SO-CALLED PERITYPHLITIC ABSCESS.[1]

BY ROBERT F. WEIR, M.D.,

SURGEON TO THE NEW YORK HOSPITAL, PROFESSOR OF CLINICAL SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK

THE subject of the origin and treatment of perityphlitic abscess has been largely dwelt upon within the last few years in the various medical societies in our principal cities, and notably quite recently by the leading physicians and surgeons in the important medical centres of Boston and Philadelphia. Though nothing specially novel can be presented in the following remarks, yet reiteration of the principal views in connection with this subject will be of importance, and especially so, it is thought, to the general practitioner. The latter will find, as his experience grows, that there are apparently two classes of perityphlitic abscesses, one of which progresses with comparatively few alarming symptoms, and develops into an abscess which either opens spontaneously, or which he, if he has recognized from the usual symptoms the presence of pus, opens with the knife, whereupon the patient, as a rule, promptly gets well. Again, a second form presents itself with more or less sharply marked symptoms of peritonitis, with the formation subsequently of a tumor in the region of the cæcum, which in due time, like the preceding one, resolves itself into an abscess. He may also meet cases in which a fulminating peritonitis destroys life in a few days. The consideration of this latter condition of affairs can, however, be laid aside for the present.

The practitioner will find it difficult to reconcile to himself that all three of these varieties have a common origin. If he consults his text-books he will learn that there are two distinct varieties therein spoken of. Some of these authorities he refers to will say that the inflammatory action is from the beginning in the connective tissue outside the peritoneal cavity behind the cæcum; and others that the inflammation has begun in the peritoneal cavity from a lesion of the cæcum or appendix and has gained the connective tissue outside the peritoneum through a perforation of the adhesions gluing the visceral and parietal peritoneum together; and finally, the latest works on this subject will tell him plainly and positively that the inflammation and abscess are from the beginning in the peritoneal cavity, and that the pus only approaches toward the surface by a natural destructive process common to abscesses generally. Among the most noted names that can be adduced in favor of these abscesses originating in the connective tissue posterior to the cæcum, are those of Bamburger, who, in 1853, stated that this view was a correct one, though he admitted that the peritoneum might be secondarily involved and so give rise to a circumscribed or general peritonitis. Oppolzer likewise, in 1863, remarked that perityphlitis meant an extra-peritoneal inflammation of the connective tissue behind the cæcum; he, however, also said that it was difficult to differentiate the diagnosis between the abscess thus resulting and that coming from ulceration and perforation of the appendix vermiformis.

It is hardly worth while to go further into a citation of the various writers who have supported these different views concerning the cause of a perityphlitic abscess. The recent articles of Fitz and others interested in the subject have amply demonstrated the incorrectness of the views of the observers first named. It is now clear to every one who has given attention to this subject that all these abscesses originate in an inflammation, simple or gangrenous, or in a perforation, and more commonly it is the latter, of the appendix vermiformis.

That the abscess might be due to a perforation of the cæcum is conceded, though such perforations are found at post-mortem examinations to be commonly caused by an abscess opening into the bowel or to necrotic ulceration from an over-distended colon from a stricture further down the intestinal tube. Cæcal perforations of any kind are, however, very rarely met with.

While this prominent fact of the inflammation or perforation of the appendix as a cause of perityphlitic abscess has now been admitted by most surgeons, yet not a few still cling to the belief that the perforation takes place in such a way that an opening, small in size, is made directly from the appendix through the parietal peritoneum into the sub-peritoneal connective tissue behind the cæcum. Two serious objections have been raised to this belief. The first objection comes from the recent observations of Mr. Treves in respect to the peritoneal covering of the appendix and cæcum itself. It is now

[1] Read at the meeting of the Medical Society of the State of New York, February 6, 1889.

the common property of the profession, through this surgeon's dissections, that these two parts of the intestinal tract are entirely covered by peritoneum. This is not a new discovery of Mr. Treves. He has only proclaimed it loudly and at a most opportune time.

Bardeleben, in 1849,[1] from an examination of one hundred and sixty cadavers, asserted as a certainty that the cæcum is completely surrounded by peritoneum, and lies so freely movable in the peritoneal cavity that it can be pushed upward and laterally. He, moreover, said at this early period that it follows, if this is corroborated, that the definition of a perityphlitis as an inflammation of the connective tissue of the posterior surface of the cæcum cannot be justified.

Luschka,[2] the distinguished anatomist, in 1861, declared that in the fœtus the peritoneum surrounds entirely the cæcum and appendix, and that this is a usual thing, and is, as a regular rule, to be found in post-fœtal life. Moreover, Luschka states that one cannot open the cæcum and appendix without opening the general peritoneal cavity; and he, too, remarks that perityphlitis, as it was then commonly regarded, was an impossible condition, unless there had been previous adhesions.

Corroboration of these views has been made by Dr. Richardson, of Boston,[3] and I have myself in thirty autopsies had the position of the cæcum and appendix carefully observed by Dr. Ferguson, pathologist to the New York Hospital. His report is to the effect that the cæcum and appendix were covered entirely by peritoneum in twenty-eight instances, the cæcum only partially covered in one instance, and it was not stated in another. It may be mentioned as a matter of some interest in this connection that in sixteen of the cases the appendix rested beneath and posterior to the cæcum. Treves has found this to occur in eighteen per cent. of the cases observed by him.

While ranging myself with those who strongly believe in the origin of these abscesses in an inflammation or perforation of the appendix vermiformis, yet I must confess from the clinical standpoint it is rather a difficult matter to prove this. Out of an experience of twenty-six abscesses of this sort that have been opened by me, in only some eight of them have I been able to recognize that the inner wall of the abscess was made up of loops of intestine bound together by adhesions. This experience has come to me, however, only within the last three or four years. I believe had I fairly tested this question in my earlier cases this number would have been increased, but it must be clear to every one that it is a test that cannot be applied with much thoroughness on account of the possible risks connected therewith. In fact, I do not advise that the matter should be determined in this way. I have elsewhere demurred to such explorations, or even to washing out the cavity of the abscess after it has been opened with liquids, plain or medicated, lest the limiting adhesions of the peritoneal boundaries of the abscess should be damaged, and the patient's safety jeopardized. I believe, moreover, and this my experience confirms, that in many cases it is utterly impossible after the abscess is opened, and it is explored gently and judiciously by the finger, that the surgeon can determine whether the abscess is external to or within the peritoneal cavity. I do not think that evidence of a negative character thus obtained is worth anything at all in settling this question.

I have, therefore, been led to see if a solution could be arrived at by considering a large number of autopsies of this affection. I have taken pains to gather indiscriminately from the *Index Medicus* 100 cases of perityphlitic abscess, where an autopsy has been obtained, and on analyzing these reports have obtained the following result. Out of a total of 100 autopsies, I found that the appendix was perforated 84 times; that it was inflamed and not perforated 3 times; that the cæcum was perforated 4 times, 2 of which were due to ulcerations proceeding from without inward—in other words, from abscesses opening into the cæcum; in 9 cases the condition of the cæcum and appendix was not stated.

As to the site of the abscess, which was an important fact to be ascertained in these 100 autopsies, 22 of them showed intra-peritoneal circumscribed abscesses; 13 intra-peritoneal abscesses and general peritonitis; 57 general peritonitis without abscess; and in but 4 instances was there an extra-peritoneal abscess; in 10 the condition was not stated.

Now this is a very strong point in favor of the propositions with which I have started: first, that these abscesses are invariably due to inflammation or perforation of the appendix vermiformis; and, second, that, as a rule, the abscess itself is developed within the peritoneal cavity. Not only out of the 100 cases were there only 4 extra-parietal abscesses, showing the rarity of this form of abscess, but also it is to be remarked, that in all these 4 there was a *large* communication between the intra- and extra-peritoneal portions of the abscess. Putting it in a different shape, it can be said that in no instance out of the 100 autopsies did there exist the gluing together of the appendix with the parietal peritoneum, and a primary escape of the contents (fecal or otherwise) of the appendix into the connective tissue by boring through this adhesion, and by the

[1] Ueber der Lage des Blinddarms beim Menschen. Arch. f. Patholog., Anatomie u. Physiologie, Bd. ii. S. 583, 1849.

[2] Ueber der peritoneale Umhülling des Blinddarms. Arch. f. Path. Anat. u. Physiol., Bd. xxi. S. 285, 1861.

[3] Boston Med. and Surg. Journal, February, 1888.

subsequent development of pus in the extra-peritoneal tissues.

There was another fact developed in connection with the examination of this collection of autopsies which must be of great importance to the physician, for he it is who sees the cases in their inception. It is this: that in only one case was the cæcum more than ordinarily filled with feces. Now, if there is anything else that is more firmly fixed than another in the practitioner's mind it is this: that the majority of troubles in this region are due to an accumulation of feces in the cæcum, and it is a rule almost prevalent in the medical profession that a purgative should initiate the treatment of these cases. It must be conceded that if it be correct, or if it be presumably correct, that the inflammatory conditions are most likely to originate from a perforation of the appendix, then this fact of itself should preclude the administration of a purgative, of even an enema; and much more would this direction become an absolute one when it is now taken into consideration how rarely stercoral accumulations are met with in this affection. Even catarrhal conditions as factors in the disease are scouted at by Treves.

The facts presented by With are likewise very convincing in this direction. This observer presented, in 1880, a series of 30 cases treated in their beginning by himself, or by his colleagues, after the ordinary method, with the result of 40 per cent. of deaths. In 1884 he again[1] reported a series of 50 additional cases similarly met with, of which only 16 per cent. died. His treatment, however, was entirely different. Purgatives, rectal injections, etc., were sedulously avoided, opium was administered as soon as the disease was encountered, and the patient immobilized as far as practicable, urination and defecation being accomplished with the greatest care and freedom from motion. I can confirm myself, in two instances, the good results of this strenuous treatment instituted in the very beginning of the disease, that is to say, when it may be inferred that the perforation is about to occur or has just taken place.

With these facts in hand, the way is before us to appreciate the proper treatment for these apparently varying affections. Indeed, the aim of this paper, and the aim, I take it, of all the papers entertaining this view that have been published in recent years, is to force upon the mind of the profession, both medical and surgical, the important fact of the *origin* of this disease, because, as With himself states, with this kept constantly in view a proper treatment is more likely to be followed; either the medical one of immobilization, or, if this should prove of no avail, that the surgeon should stand, knife in hand, ready to use his instrument as occasion may demand.

[1] La Péritonite appendiculaire. Copenhagen, 1884.

I do not intend by this picture to give rise to the idea that in every case surgical interference should be immediately resorted to. I have learned by experience that many cases of moderate severity do not go beyond the stage of plastic exudation and subside without abscess; also, that some few abscesses disappear by a presumed opening into the bowel—not always to be proved. I know that delay may be safely resorted to, from the progress of some of the twenty-six cases of operations which have occurred under my own charge, wherein a comparatively late incision was made. This occurred in nearly all of them, not, however, from my own choice, but because they were either hospital cases that came late under my observation, or they were seen in consultation in private practice after the disease had already existed some time. In this number of cases only one death has occurred, and that from an abscess of tubercular origin and in a phthisical patient in the last stages of his disease. Yet though all these, save that one, recovered, a good many of them had a very narrow escape from death by reason of the extensive suppuration, or the threatened sepsis that followed the retention of pus in a large, irregular cavity, or, in some cases, by the prolonged fecal discharge.

I do not know that the lateness of operation influenced this latter point much. Still, the statistics afforded by Noyes, quoted elsewhere,[1] bear out the conclusion that the earlier the safely progressing or subacute abscesses are opened, the better are the chances of the patient. Out of 100 cases Noyes found that in 88 operated upon after the eighth day 17 per cent. died, and of 12 operated upon before the eighth day, 8½ per cent. only died. There is also a risk that the patients carrying these slowly progressing abscesses are exposed to, and it is that the abscess itself may burst into the peritoneal cavity. In 67 cases collected by Dr. Bull, 8 burst into the general peritoneal cavity, and in 12 collected by With, 6 terminated in the same way. It will be remembered that, of the 100 autopsies cited above, in 13 of them there was a limited abscess associated with general peritonitis. The latter was believed, in many of these cases, to be due to a giving way of the soft adhesions circumscribing the original abscess. Furthermore, there are the risks of portal phlebitis with external or internal suppuration of the liver, and pyæmia to be encountered, the longer the pus is retained within the system.

Therefore the rule has been laid down, and in my judgment it is a wise one here, as elsewhere in the body, that as soon as pus is recognized it should be evacuated. Whether a surgeon should

[1] A Plea for Earlier Operation in Perityphlitic Abscess. Weir: Medical Record, June 11, 1887.

resort to measures for determining the presence of pus, such as the use of the aspirating needle or the making of an exploratory incision, will in any given case depend upon the condition presented by the patient. In other words, if the disease be acutely progressing, the surgeon will at once be called on to decide whether the patient will incur most danger from the progress of the disease or from operative interference.

In the case of a slowly progressing tumor without any or with slight peritoneal symptoms, or with those which may have passed away, or ameliorated within twenty-four hours, one need not always feel obliged to hasten to determine whether pus is present or not. The likelihood of there being simply some exudative fibrinous process is quite as great. I have myself been accustomed to keep such patients under careful observation for three or four days, and bide my time until some elevation of temperature, some chill or sweating, or some increase in the size of the tumor indicates that more than such an exudation is present.

I am sometimes compelled to take this course in the earlier days of attacks of this sort, even when unwilling to do so, by the wishes of relatives, or by that more commanding objection, the reluctance, positively expressed, of the attending physician to consent to the employing of surgical measures. I have so far not been able in these milder cases to operate earlier than the fourth day, though my inclination leads me more and more to diminish the period of delay. In those cases, however, where there are decided symptoms of peritoneal involvement over a considerable area, and after such marked symptoms have had a duration of twenty-four hours without any subsidence and are associated with the concomitant symptoms of vomiting and elevation of temperature, then I believe we are justified in interfering without further delay, whether a tumor be present or not. If a tumor, however, does exist, then the question of the advisability of aspiration may be raised, and if decided on this may afford another evidence of the necessity for an immediate operation.

The value of this means of exploration is more commonly realized in those cases where the disease has existed more than forty-eight hours. The needle is usually introduced at a point just over the site of the appendix—that is to say, almost an inch and a half above and nearly the same distance inside of the anterior superior spinous process—and is then carried backward or downward toward the appendix; or it may be thrust inward, and somewhat downward at a point just above the middle of the crest of the ilium, hoping in this latter direction to detect an abscess that may run upward in the right dorsal gutter, and which is erroneously spoken of as being extra-peritoneal in character or of a peri-nephritic location.[1]

I may insert here (as it has previously been omitted) in this connection, that in the one hundred autopsies referred to in the early part of this paper there were seven instances where abscesses had formed in this region, *all within the peritoneal cavity*, and that in two of them the purulent matter had advanced as far as the posterior part of the liver, being limited internally by adherent intestines. Individually I believe that the abscesses of perityphlitic origin which are here found are located primarily, if not during the whole course, in the peritoneal cavity.

Concerning the usefulness of aspiration it must always be kept in mind that, while its employment may reveal the existence of pus, a failure to draw out this through the needle does not prove that pus is not there. Its use, moreover, is attended by some slight risk. When employing it in cases where a tumor was only suspected or could not be clearly and definitely made out, the thought has often come up to my mind that the point of the needle might perhaps perforate a distended bowel. This probably is not of any great matter unless the distention exists to a considerable degree, but the possibility of its doing damage to a normally situated or to a displaced iliac vessel, vein or artery, has often occurred to me. In order to avoid the risk of an extravasation of fetid pus that may come on from this exploration, into the peritoneal cavity, or along the track of the needle through the muscular tissue of the abdominal wall (the occurrence of which I have demonstrated in two instances), I prefer always to follow the revelation of the presence of pus by the needle by making the required incision at once.

I think in our present status that it will go without saying that in those instances in which there are signs of spreading or purulent peritonitis (even though no tumor is recognized in the iliac fossa, either by the ordinary examination or with the patient under anæsthesia) immediately laparotomy is demanded from the nature of the case, provided the general condition of the patient is not too much weakened by the practitioner's delay.

In the first-named variety of abscesses—the milder form of the disease—the incision can, as a rule, be made over the most prominent portion of the tumor; or, in general terms, parallel to Poupart's ligament and running along its outer part and the anterior portion of the crest of the ilium. If the abscess runs further backward the incision is carried in that direction also. In some few instances, as in the surgical treatment of a supposed circumrenal or

[1] A case (read as this proof is corrected) has recently been reported by Coupland in the British Medical Journal, March 23d, where a perityphlitic lesion had caused a subdiaphragmatic abscess.

hepatic renal abscess, the incision must be made vertically or obliquely in the space between the crest of the ilium and the ribs, or in the subdiaphragmatic form along the ribs, or possibly through the pleural cavity itself. But in those cases where there are evidences of spreading peritonitis with or without the presence of a tumor, it is much better to make a tolerably extended incision along the outer half of the right rectus muscle, the upper end of which should reach to the level of the umbilicus. After the muscular layers are divided the surgeon can readily recognize when he comes to the peritoneum. If the tumor is a large one, which is rare in the early stage of the disease, he may now see some evidences of œdema of the extra-peritoneal tissue, or even find the matter has broken down this membrane and has invaded the abdominal walls, but usually nothing is visible till the peritoneum is cut through, when one of three conditions may present itself.

First. A mass of œdematous, opalescent exudation of varying thickness, sometimes half an inch or more in depth, may be observed. On cutting through this he may come down into an abscess cavity large or small. This condition is likely to be found in the more slowly progressing troubles of the vermiform appendix, and it particularly belongs to those cases in which there have been previous and not very far distant attacks of appendical inflammation.

Second. The parietal peritoneum may be found normal, or perhaps adherent to the adjacent coils of intestines by a few recent adhesions. On gently pushing through these latter, if such exist, a firmer resistance may be encountered, and on boring through this with the point of the finger the cavity of the abscess is opened. If the parietal peritoneum and the adjacent intestines should be apparently free from adhesions, and yet an abscess be recognized by a tumor, though at some distance from the surface, it can be opened, and entered in the same manner by the finger. When this form of a more deeply located abscess is observed, it is wiser freely to enlarge the incision in the parietal peritoneum and to push away the interposing intestines, until warned by adhesions that the abscess is being approached, when the free peritoneal cavity can in a quite perfect manner be protected from the irritation of the pus that is about to be evacuated, by first packing the cavity with sponges or iodoform gauze; after this the abscess may be opened. I may, however, here remark that the septic influence of such pus on the adjacent intestines, in the cases that have come under my own care or observation, has been entirely absent, and this is contrary to what has been theoretically stated by those who oppose an early operation for the relief of these abscesses.

Third. There may, finally, be found on the immediately presenting loops of intestine next to the parietal peritoneum (or it may be encountered in the region of the cæcum), pus in moderate quantity and not encysted, or purulent lymph smeared over the intestines. An exposure of the appendix, which is usually easily done in these cases, may show indubitably that it is the seat of the trouble, being either inflamed, perforated, or gangrenous; and the further exploration by means of a sponge on a long forceps carried into the pelvis or into the dorsal gutter of this side may reveal that we have to deal with a general suppurative peritonitis.

As a direction common to all of the above conditions save the last, it may be said that if the surgeon encounters a limited abscess and opens it, it is further treated simply by introducing a drainage tube, and possibly by a partial closure of the abdominal wound and the usual antiseptic dressings.

I have already stated the objections to washing out or freely exploring such cavities. I can also see only danger in all the attempts that have been made by some to search for and to remove either the concretion that has produced the perforation or the perforated appendix itself. If the appendix should, however, be exposed and be readily accessible, it is proper to tie it off by a stout silk ligature. No fear need be entertained of a permanent intestinal fistula in any form of abscess, even where its contents smell strongly of feces, or even where there is a more or less decided flow of the contents of the bowel from the cavity for some time after the operation.

Furthermore, while not in a position to make the statement with positiveness, I have been strongly impressed in my investigations by the fact of the rarity of recurrence of perityphlitic abscesses that have been relieved by operation and where no interference with the appendix had been resorted to. This seems to support the advice just given, not to strive too zealously to get away the appendix. It is reasonable to suppose that the cicatrization of the perforation, occurring, as it usually does, in the upper part of this tube, obliterates its lumen so as to form a permanent safeguard against a recurrence of the disease.

On General Suppurative Peritonitis.—As has been stated, an exploratory operation, conducted in the manner just described, may reveal that the peritonitis has invaded the peritoneal cavity to an extent much wider than the iliac fossa. This spreading inflammation shows itself in two forms, to which I am disposed to attach some clinical difference in importance. One, with the ordinary lymph exudation, with occasional small depots of matter, or with moderate layers of liquid pus bathing sundry sparse coils of intestines, with its focus of intensity in the right iliac fossa. This form is often associated with both completely and incompletely circumscribed abscesses. And in another form, where there is comparatively a scanty amount of plastic exudation,

and where the intestines are bathed over a great extent with a thin layer of pus, which, however, is but seldom encysted, and in which pus is found in considerable quantities in the pelvis or along the dorsal gutters.

This latter form is, to my mind, the most intense, most fulminating, and most septic form of the disease, and is frequently met without any attempt at a circumscribed abscess, or, if so associated, the latter is small and has early burst its barriers. Prior to operation this kind of peritonitis can sometimes be recognized by puncturing through the abdominal wall with a hypodermatic needle in other places than in the right iliac fossa, or by a hypogastric puncture made deep in the pelvis, the bladder being first emptied. Whether these differences in inflammatory action, the result of a perforation of the appendix, are due or not to the amount of fecal or gaseous extravasation that takes place, is somewhat difficult to determine, but the experiments of Pawlowsky[1] seem to support this view. This observer has found, experimentally, that in the peritonitis resulting from perforation of the intestine, a peculiar germ, called by him the bacillus peritonitidis, is usually found, and that cultures of this bacillus brought death, when injected in animals, in from twenty-four to seventy-two hours, with the production of a fibrinous, purulent peritonitis. Where the disease lingered a little longer the peritonitis was purely a suppurative one.

In 6 cases of suppurative peritonitis of a marked character, coming from a perforated appendix vermiformis, and not included in the 26 previously referred to, that have been treated by me by laparotomy, in all was the lumen of the appendix sufficiently large—up to its origin in the cæcum—to have permitted of a free escape of the irritating contents of the intestine. This patency of the appendix I cannot but think must have an influence on the severity of the disease. In health and in disease its lumen greatly varies. Kraft[2] has also suggested that differences of severity might be ascribed to variations in the mobility of the appendix; that, for instance, where it was short, as with a scant mesentery, or was confined by some previous adhesions, a more limited inflammation might be expected.

While some observers have advised for a recognized suppurative peritonitis that the treatment required should be carried out through the lateral exploratory incision, I have myself, in two instances where it was practised in this manner, found myself somewhat hampered by the limitations of this incision, and therefore prefer to make, in addition to the exploratory one, a median incision, believing that this more commanding section expedites the treatment and renders it more certain. The lateral incision can be subsequently utilized for drainage purposes and for the special treatment of the appendix itself.

The median incision is also to be advised from another standpoint which has lately come home to me. In two instances I have observed that though the sponge introduced in the pelvis drew out pus through the lateral exploratory incision, yet the further carrying out of the treatment of cleansing the abdomen, etc., showed that the general cavity had not been invaded throughout its whole extent until the surgical manipulations had been employed, and that, had a median incision been made, one might possibly have been able to recognize and evacuate these abscesses, of unusual size and with slight limiting adhesions, without exposing the patients either to the risk of infecting the only moderately damaged peritoneum above, or, what was more important, might have spared them the exhaustion consequent on the necessity of a prolonged toilet of the abdominal cavity. Hence, it has now become my rule, after the resort to the lateral exploratory incision has demonstrated that no collection of matter is here present, and that the symptoms there or elsewhere found point to a possible invasion of the general peritoneal cavity, to resort to a median incision opening into the cavity rather high up, and carefully to enlarge it downward as may be required. Such abscesses can sometimes be recognized and treated per rectum, which, therefore, should always be examined in a case of perityphlitis or any form of peritonitis.

If, after all, a veritable general suppurative peritonitis be encountered, we have one of the most discouraging lesions in the whole of surgery to treat. Whether we resort to the sponging out of the pelvic cavity or dorsal gutters, a very exhausting procedure, or whether this cleansing is effected by repeatedly filling the peritoneal cavity with boiled water, or with a solution of salicylic acid 1 : 1000, or other non-poisonous antiseptic solutions, or whether it be accomplished by the less irritating means of irrigation with one or two glass tubes carried down to the bottom of the abdominal cavity in various directions, according to Tait's suggestion, and however thoroughly, however quickly this end may be accomplished, and however satisfactorily we may place our drainage tubes, say one in the pelvis, one out through the lateral incision down to the stump left by the removed appendix, the difficulties of the case are but half encountered.

No delay need be made in this part of the operation, or, indeed, under any circumstances, by endeavoring, after cutting off the appendix, to cover the remaining end by peritoneum, as Treves has sug-

[1] Beiträge z. Aetiologie und Entstehungsweise der akuten Peritonitis. Centralblatt f. Chirurg., No. 48, 1887.

[2] Ueber die frühzeitige operative Behandlung der durch Perforation des Wurmfortsatzes hervorgerufenen Perityphlitis stercoralis. Samml. klin. Vorträge, No. 331.

gested. Surgical experience is sufficiently great, here as well as in the removal of the gall-bladder and in ovariotomy, to show that this is unnecessary. Granted that the patient's strength, already wasted by the disease, enables him to tide over the shock of an operation of this character, there remain after the closure of the wound dangers which thus far our surgical art has not yet learned to overcome.

Out of twenty-five cases of this description of general peritonitis arising from perforation of the appendix vermiformis, but one has, so far as I have been able to learn, been saved. Two doubtful cases[1] have been recently classed in this catalogue, but a closer reading of their histories seems to point more toward the spreading exudative form of peritonitis with a circumscribed abscess than to the true suppurative type; but even these should be considered as triumphs of surgery.

In my own six cases of laparotomy for this disease in its well-marked form, death has ensued in every instance, either from the shock of the operation, that is to say within twelve hours thereafter, or from the persistence of the symptom which exists nearly always before the operation—I mean fecal or fecaloid vomiting, the matters vomited being always of a yellowish or creamy-brown color, but not always having a fecal odor attached to them; a condition which, beginning as the ordinary green bilious vomiting, thence changing to the above character has been so frequently proved to me by autopsy in connection with intestinal stenosis where no peritonitis existed as to convince me that its significance is always that of obstruction, though it is true this obstruction may be caused by peritonitis. This obstructive symptom is due, as the interesting investigation of Malcolm[2] has shown, to paralysis of the muscular coat of the bowel occurring from the overstimulation of the nerve-plexus of Auerbach which supplies it. Operative procedures of themselves sometimes occasion this paralysis, but septic influences are the most potent causes.

Sometimes obstruction is produced by the pressure of the distended coils on an adjacent part of the bowel.[3] This has been found not rarely in post-mortem examinations. Irregular contractions of the bowel, due to septic irritation of the muscular coat, are also found. It is this absolute paralysis of the intestine which constitutes, in addition to the general poisoning of the system, the great danger in these cases. And while the success of the early use of purgatives in the lesser forms of obstruction after ordinary laparotomies has only confirmed Mr. Tait's eulogy of this method of treatment, yet in these marked septic forms of peritonitis his treatment utterly fails. It is the exception to succeed in bringing about purgation, use what you will, whether salines, mercurials, or the washing out of the stomach.

In the three of my cases wherein the duration of life after the operation was prolonged sufficiently to enable me to undertake the trial of every method to overcome the obstructive symptoms, nothing brought about a discharge from the bowel save in one instance, and in this to but a slight extent. Moreover, in one case, as a last resort, it seemed proper to me to open one angle of my abdominal wound and to draw out the first presenting distended loop of intestine, at that time shut off by adhesions from the general cavity, and open it. But a scanty amount of fluid feces came out of the artificial anus thus formed, and without any marked relief to the patient. Also in one of Duplay's cases a tube was introduced through the perforated appendix into the colon without any benefit resulting therefrom.

In the autopsy of all of these cases (and this remark is only of value in the three who lived beyond twenty-four hours) there was but very slight evidence of fresh peritonitis, yet the temperature had kept up so high throughout as to corroborate the belief that no matter how thoroughly one might wash or cleanse the peritoneum during the operation, much septic material must be left in the various patches of exudation or in the inaccessible nooks of this cavity, to perpetuate the infection raging in the general system.

I had been much struck with the remarkable results witnessed in the wards of Mr. Treves in the treatment of suppurating disease of the knee-joint, by continued aqueous irrigation for a period of nearly a month, with the effect of securing a perfectly movable articulation, and had determined, in the next case of suppurative peritonitis presenting itself to me, so to arrange an entering tube, lodged in the pelvis, and a smaller emergent one in the upper part of the abdominal cavity, as to conduct a continuous stream of boiled or salicylic water through these for a number of days, and thus to secure, at least for a moderate length of time, a hyperdistention of the cavity, and a thorough dilution of its poisonous contents.

This idea, I have already learned, has been put into effect by Penrose, of Philadelphia,[1] who used on one occasion two glass tubes placed in the pelvis, and one large tube running from the epigastrium to the lower angle of the abdominal incision. The irrigation was not, however, continuous, but the abdomen was flushed with warm water every two hours for twenty-four hours after the operation, with a successful issue to this case of suppurative

[1] Those reported by Drs. Sands and Jacobus.

[2] The Condition and Management of the Intestine after Abdominal Section, considered in the light of physiological facts, by John D. Malcolm. Med.-Chir. Trans., vol. 81, 1888.

[3] Verchére: Septicémie Intestino-Peritonéale. Revue de Chirurgie, July, 1888.

[1] Intestinal Obstruction in its Surgical Aspects. Journ. Amer. Med. Association, July 14, 1888.

peritonitis with gangrenous patches on the sigmoid flexure.

Greig Smith[1] and Wylie also announce that they have used this repeated peritoneal flushing with advantage. Clinically, however, it must be admitted that such hyperdistention of the peritoneal cavity and ablution of the intestines can be carried on but a short time, as experience with the ordinary drainage tube shows how rapidly the general cavity is shut off by adhesions.

In concluding these remarks it must be again placed prominently forward, that though laparotomy for general peritonitis following perforation of the appendix has had most discouraging results, yet that in nearly every case in which it has been so performed the disease had existed, on the average, nearly three days, the shortest time being thirty hours. Pawlowsky's experiments, and my own operations and those of others, tell us that the delay is an all-important fatal factor in these cases. Where the agonizing pain that ushers in often mild as well as severe cases does not yield to opium, and the vomiting does not cease, and particularly the temperature does not fall within twenty-four or, at the most, forty-eight hours, then promptness of surgical action is required. Much less time should be allowed if the pain spreads, and other symptoms aggravate in severity. The query is, whether the prospect of an early laparotomy is a better one than the chance of a limited abscess forming. This latter is not a large one. My own collection of autopsies shows that a patient has about twenty-five chances in a hundred in his favor.

I venture, therefore, in terminating this paper, to present the following conclusions, based on observations of 100 post-mortem examinations and from 32 personal operations for so-called perityphlitic abscesses:

I. That all such abscesses originate in the peritoneal cavity, and there develop to an appreciable size before invading extra-peritoneal tissues or viscera.

II. That as stercoral accumulations or cæcal perforations are so rarely met with as causes of perityphlitic tumor or abscess, they should not be considered from a clinical view in any given case.

III. That in an attack of perityphlitis originating, as it generally does, as a perforation, or as a gangrenous condition of the appendix vermiformis, all use of purgatives or enemata is in the beginning of a case to be avoided, and the immobilization of the patient is to be insisted on, and aided, if necessary, by anodynes.

IV. That if a tumor be found, it be opened by a lateral incision as soon as symptoms, constitutional or local, indicate the formation of pus.

V. That if symptoms indicating an increase of the local peritonitis, such as the persistence of vomiting, spreading pain, abdominal resistance, and temperature elevation, continue, with or without the formation of tumor, for a period of forty-eight hours, the danger of the disease is greater than the proposed lateral or median laparotomy, which should then be immediately resorted to. In many instances even a less time should be afforded the consideration of the disease before operating.

VI. If a general peritonitis be suspected, corroboration can often be obtained by abdominal aspiration with a fine needle employed in places other than in the right iliac fossa, and particularly by a deep, hypogastric puncture into the pelvis, the bladder being first emptied. However, if left in doubt, it is better to operate.

VII. [*Sub judice.*] That if general suppurative peritonitis be found at a laparotomy, lateral or median, avoid too much handling of the intestines, and trust to either temporary irrigation with large glass tubes (Tait's), or, more rationally, to permanent or repeated irrigation and fluid distention of the abdominal cavity, as advocated by Greig Smith and by Penrose.

VIII. [*Sub judice.*] To meet the obstruction symptoms due to septic paralysis of the bowels, which often persists after a laparotomy for suppurative peritonitis, saline purgatives and repeated washing out of the stomach should be resorted to, even though vomiting be present to a marked degree. Enterotomy may also, in exceptional cases, be entertained.

[1] Abdominal Surgery, 2d edition.

THE EFFICACY OF FILTERS AND OTHER MEANS EMPLOYED TO PURIFY DRINKING-WATER.

A Bacteriological Study.[1]

BY CHARLES G. CURRIER, M.D.,
OF NEW YORK.

(Concluded from page 431.)

ALLIED to the porous stone filters are those of porous porcelain prepared in this country. Porcelain baked at the same low temperature as the porous cups used in electric batteries is, in its efficacy, very much like the stone just described. Under a low pressure, water passing through this substance during one or two days can become completely sterilized, which is a result superior to that got from the stone filters. Before much water has passed, the bacteria make their way through and multiply somewhat on the passage. This material, as I have thus far found it, of American manufacture, is therefore imperfect, yet is superior to rebaked porcelain in the single important respect that it is not brittle, while the rebaked porcelain cylinders of the Chamberland-Pasteur filters are quite fragile.[1]

[1] It has for some time been known that fluids can be rendered germ-free for laboratory use by being passed through solidified plaster-of-Paris (best prepared with incorporation of asbestos.

Recognizing the defects of other substances, Pasteur and Chamberland[1] called attention to their filtering cylinders, in which the important element is unglazed, rebaked porcelain. Originally employed to facilitate "cold sterilization" of fluid culture media, the fact that water went through the porcelain without carrying any bacteria with it has caused attempts to popularize its use. Inasmuch as some bacteriologists on both sides of the Atlantic had reported that this filter prevented the passage of bacteria, I was careful to use only selected cylinders without flaws, and did not omit any precaution to prevent the introduction of contaminations.

The most satisfactory way of using this for testing was to employ the single porcelain cylinder, within the usual casing, attached to a hydrant system and with a pressure of water varying from six to fifteen pounds.[2] Even with the highest New York hydrant pressure the flow is only drop by drop. It can be used to siphon water out of a jar, and in this way it works nearly as rapidly as when attached to the hydrant in the basement of a house in the centre of this city. By a porcelain cross tube sold in Paris, two or more cylinders can be siphoning at the same time into the same tube. To avoid risk of contamination, I used for siphoning a single cylinder, to which a bent glass tube was attached by a tightly-fitting piece of rubber pipe, all parts having been sterilized as well as the water by which the flow of the siphon was started. I got germ-free results regularly by this means in seven trials with two cylinders used separately;[3] but, in order to insure this, all the precautions mentioned are necessary as, in the water siphoned in domestic use of these cylinders, bacteria of various sorts are found, yet they are possibly contaminations due to the inherent defects of all such joints as are used. So I have devoted more time to testing these when directly connecting with the hydrant, as very slight precautions are needed, in their use with faucets, to eliminate all chances of contamination.

My first thirteen trials of this filter used in this way were under less satisfactory conditions than the fourteenth and those following, as the former were in a laboratory where the available water came under not much more than twenty feet pressure from a tank, and I was not able so well to control the constancy of this pressure as I was during the later trials. My first sixteen tests of various ones of these cylinders gave sterile water. Then, attached to a basement faucet, with a direct flow from the hydrant under a pressure never exceeding fifteen pounds (except that on Sunday nights it was for a few hours three pounds higher), the filter, after several days of intermitting use, gave over 3500 bacteria in each cubic centimetre and all the water examined (two samples per day) for four days showed an increasing number of bacteria.[1]

On the third and fourth days after the first passage of bacteria through the porcelain wall of the cylinder, the number in each cubic centimetre varied above and below 400,000. The filter was then sterilized by steaming for five hours, as was also done between the second and third series of tests. These tests bore out the results of the former observation.

That these results show that average specimens of this substance have the inherent defect of all filtering material, though in a much less degree than all others, seems to me unquestionable. That the bacteria did not get through owing to some defect in the particular filters which I used is evident from the fact that the cylinders employed (and which were selected by me in Paris as perfect), through which the bacteria passed, are still free from any appearance of a flaw which could explain the passage of these micro-organisms. The same filter which (first of those used in my tests) allowed bacteria to pass through, has repeatedly filtered water free from all bacteria for a few days after each of the several sterilizations which it has since undergone.

In three following series of trials of this identical cylinder, bacteria have gone through its walls in from three to four days after each sterilization. They have also gone through a second perfect cylinder with which I experimented. That the bacteria were not introduced by careless manipulation is evident by reason of their number, and because of the fact that, after the filter was sterilized, they were found in each case at a particular phase of each series of tests with the intermittent pressure which only for a few hours once a week was as high as eighteen pounds, and was usually as low as eleven. At the beginning of each series of tests the filter was sterilized.

The bacteria were not splashed in from the sink below, for, in the first place, all splashing failed to carry in any as revealed by testing the water filtered

shreds). These filters, however, lack permanency and cause the objectionable sulphate of lime to be present in the filtrate

[1] Bouley (for Chamberland): Comptes Rendus de l'Acad. des Sciences, 4 aout, 1884.

Chamberland: Comptes Rendus Hebd. (etc.) de la Société de Biologie, 1885, p. 117.

Immediately following this (*idem.*, p. 120) were reiterations of adverse criticisms by Galippe and Bourquelot.

[2] This highest pressure was only at night, and once on Sunday night the pressure for a short time was three pounds greater. During the daytime the pressure was rarely more than ten or eleven pounds, but occasionally the gauge vibrated a little higher on account of the concussion of the water while a neighboring pump was working. The pressure was tested by an expert, and was only half of that indicated on the French circular of the agents of this filter in Paris as yielding 200 litres (50 gallons) per day.

[3] One cylinder being used three times, and another four times, each being carefully sterilized before each trial.

[1] The varieties first passing through were:

1. Colonies liquefying gelatine, and composed of medium-sized very mobile bacilli.

2. Superficially-spreading colonies of short, mobile bacilli.

after such experimental attempts to throw water in, and none had ever multiplied inside or even remained there during my first thirteen tests, when there was much splashing in the common sink. During my later trials there was no chance of such contamination.

To answer fully in advance any such objection, I will state that after I got the enormous number of over 400,000 in each c. c. flowing through the porcelain, and had sterilized the cylinder, water was allowed to flow through it and plated, but was sterile in that no bacterial colonies developed. Then, while the filter was in action, I introduced, with a sterile needle (from below through the aperture into the inside of the cylinder), and, touching the needle to various parts of the surface, deposited over it peculiar bacteria from a pure culture derived this winter from the water of one of the northern lakes which I examined during my investigations as biologist for the Syracuse Water Commission. The colonies of this bacillus, when growing on gelatine plates, have a peculiar odor, a distinctive green color, and other characteristics which clearly differentiate them from any bacteria ever found in the Croton water. The water flowing out all the while, or rather dropping out, was, three minutes after the introduction of these, collected in sterilized test-tubes and was found to contain 175,000 of these peculiar bacilli in each c. c. After seventy-five minutes there were only 14 bacilli in each c. c. of the water then flowing through the porcelain and two hours later, and during the next day, there were no bacteria of any kind in the water which again later in the series showed that the Croton bacteria had passed through with it. This proves that the increase in the number of the bacteria was not after the water had passed through the substance of the filter.

These facts, together with the extreme fragility of this rebaked porcelain, and the exasperating slowness of the flow, which does not improve on long trial, have caused me to modify the recommendations which I gave among my colleagues and others after my first tests of these filters.

As regards rapidity of flow and non-fragility, a notable improvement over the cylinder form (which I have just spoken of) is afforded by a series of two or more flat plates of porcelain similarly prepared. In the Varrall-Brisse pattern these porcelain plates are backed by carbon plates of the same shape and size and the filter yields sterile water for a long time under gentle pressure, although I do not consider the carbon an advantage. The further such filters vary from the simplest type, the greater is the likelihood of the introduction of contaminating bacteria into the filtered water.[1]

Of the various forms of filters used upon faucets, I feel bound to warn against those rotating within an outer shell. Whether packed with charcoal, sand, or any other material, and even if the water go through the filtering mass and not around it, the filter has the great drawback of various irregularities and depressions on the interior which retain organic matter and allow bacteria, both harmful and harmless, to increase in it and maintain their vitality for a longer time than in ordinary filters. This conclusion I am led to by the results of various experiments and observations. In a recent epidemic in a large New England city this form of filter appeared to play an active part in continuing the infection, for cultures, in every respect like those of the germs of typhoid fever, were derived from several of these suspected filters by Dr. Prudden and others. I have found that the typhoid bacillus lives much longer in the sediment collected from filters than in pure water.[1] At its best, this filter cannot remove the bacteria from water, and they multiply in the charcoal or sand so that, even after several minutes of washing out by the stream flowing from the hydrant, the water coming through this filter may show several times as many as are in the water directly from the hydrant. To avoid waste of time in repetition, I will refer to the facts observed with the sand filter, as the mechanical action of the filtering mass is identical in both.

The sand filter, for attaching to faucets, is perhaps the simplest and most popular used. It consists of a cylinder of like breadth and length, being not quite three inches long. It screws by either end upon ordinary faucets, and its interior is filled with crushed silica or fine sand, kept in place by wire-gauze at either end. I have adapted several much larger without securing more satisfactory results. Taking a new one, sterilized throughout, allowing a fair stream of water to flow through it when attached to

[1] As out of twenty-seven kinds of filters that I have been able to test, this seems, on the whole, the best substance yet produced for the purpose, it is to be hoped that American ingenuity make further improvements upon the models now existing. The cost need not be great even if all be carefully tested before being sold, as suggested by Fol and Dunant (Rev. d'Hygiène, 21 mars, 1885, p. 183).

The "Pasteur Filter Co." requests me to state that it now furnishes a slightly different style of cylinder in which the porcelain is invariably of fine quality and claimed to be "germ-proof."

[1] I have removed the slimy sediment from the outside of a porcelain filter, and without sterilizing this, put it into sterile test-tubes, and then added water in which the germs of typhoid were found living. After these had stood together for four weeks, several plates of the water were prepared and, making several cultures from the various colonies which appeared like typhoid, a bacillus identical in all its features with that of typhoid was isolated, and considered as typhoid by those to whom it was shown. This is longer than I have been able to keep this bacillus alive in pure Croton which had been sterilized. All waters tested were in tubes of the same size and at the same temperature. In laboratory experiments we are not able to reproduce the conditions existing in the large bodies of water, where these harmful bacteria can probably live longer still under the evener temperature there prevailing.

a faucet and at the same time taking water directly from the same supply-pipe from the hydrant by means of another faucet by its side, and under the same conditions of pressure and outlet, except that there is no filter upon the second faucet, the water is seen to flow in a free stream nearly as large as from the unobstructed faucet, while the Pasteur filter, attached to the same supply-pipe and with the same pressure, allows the water to come at the rate of only a few drops each minute. Even with a gentle stream through the freshly sterilized sand filter, very few of the bacteria are arrested. With very fine sand in a cylinder holding three times as much as the ordinary one, and a very small stream flowing, I have observed more than fifty per cent. to be retained. This result is seen only in the first use of an absolutely sterilized filter.

Speaking of the tank variety of sand filters, it was shown that moistened sand favored the increase of bacteria brought into it by Croton water which had flowed through. In the sand or other granular contents of these filters attached to hydrants the same multiplication takes place when the water has for some time ceased flowing, and this increase is at a more rapid rate than in water standing in a clean vessel by the side of the filter. The first flow in the morning, for instance, after the filter has remained unused over night, shows a much larger number of bacteria than the hydrant water then contains. Even after the water has flowed for several minutes for the purpose of washing out the filter, the bacteria are in excess over the number in the original water. After such a filter has had the hydrant stream running through it long enough to wash out all the germs that have resulted from the increase (which complete cleansing is not always producible), the bacteria in the water may appear nearly the same in number as in the hydrant water, varying slightly either above or below. While such filters are worse than useless from a bacteriological point of view, they are good strainers when not clogged by too long use without cleansing. As strainers they are less troublesome than flannel bags (which are as safe as these sand filters for use with suspected water, provided that they are removed at least once a day to be disinfected by boiling). The act of reversing this popular sand filter does not cause the removal of the organic matter upon which the bacteria can be nourished. Only the loose outer portion is thereby removed. Such a sand filter is a safer strainer when never reversible and it should be cleansed at least once a day when needed at all.

Powdered magnesia and other granular substances used instead of sand in the style of filter just described, have no superiority over the easily cleansed sand.

Asbestos-board I have not been able to procure of sufficiently firm, strong, and fine surface to resist the passage of bacteria under any considerable pressure from the hydrant brought to bear upon such a surface. The quality of the surface seems the important point. To yield a flow of any degree of rapidity, this surface must be large and that creates a tendency to break and necessitates a bulky filter, which most people shun. Packed asbestos shreds allow a few bacteria to pass through when the sterilized filtering mass is so dense as to cause the flow to be very slow. In this substance I have, as already mentioned, not observed so marked multiplication of bacteria as in the sand, porous and other filters.

Although large bodies of sand fail to prevent the passage of bacteria with the water which percolates through, it is noticed that certain natural filters of this sort render water much freer from bacteria when the water has first to make its way through a layer of silt and minute particles which have been arrested by fine sand. It is from the application of this principle that the large filter-beds are built which purify the water distributed by hydrants throughout various cities. Taking as a model the very carefully managed filter-beds of Berlin, it is seen that above the base of the filtering tanks is a layer of a foot of stones, gradually becoming smaller in size toward the upper surface, upon which is coarse gravel to the height of a foot more, then upon this a little more than two feet of sand, which at the top is as fine as can be procured. When the filter-bed has been freshly cleaned, as is found necessary for it after being constantly used for a week or so (occasionally several weeks), purified water is slowly backed into the filtering-mass from below until this water, carrying up all the air with it, has reached the top of the upper layer. Then the ordinary river (or lake) water is made to flow very gently in, to the depth of one metre. This is then allowed to stand for at least twenty-four hours. The nitrogenous or other particles, confervoid vegetation, and whatever else the water contains as sediment, have then settled upon the upper portion of the fine sand without sinking deeper, and a delicate film is formed which, with careful inlet and gentle pressure (never to exceed two metres of water), retains nearly all the bacteria of the water supplied, and prevents their passage, provided that the flow through is very regular and slow (never more than three metres in a day). Nearly all this separation of the bacteria is produced by the sedimental matter retained on the surface of the sand, so that, when the filter slows from clogging, it is found that less than half an inch of the upper layer of sand need be removed.

From the statistics of Wolffhügel[1], and of Plagge and Proskauer,[2] we learn that the number of bac-

[1] G Wolffhügel: Arb. aus d. Gsdamt., ii. 1 und 2, p. 109

[2] Plagge u. Proskauer. Zeitschrift f. Hygiene, 1887. ii. p. 401.

teria, originally very large in the river Spree, is reduced to a very small percentage in the filtered water, oftentimes a fraction of one per cent. I may add that the organic constituents are also decidedly lessened, and that the oxidibility, as tested by the reduction of a standard solution of permanganate of potash, is seen to be regularly lowered one-fourth and often one-third of the amount shown prior to the filtering. The long arrays of figures given in the reports of the action of these filter-beds show that, with hardly an exception, the ammonia is constantly removed by the process.

In this country the filter-beds, all of which are built upon the same plan as those in Berlin, are less perfect in their action, as the people in charge do not devote sufficient care to sedimentation in the case of those which I am familiar with. Thus, a very carefully planned filter-bed, which filters river-water for one of our cities, allowed, at the time when I examined it, nearly half of the large number of bacteria in the water pumped from the river to pass through. This unsatisfactory result seemed to be due to the fact that too much water was required from the small filter-beds and hence not enough care could be bestowed upon the thoroughness of the filtration.

Of the various large filter systems which I have tested while they were in use in various manufactories and institutions, for which these filters were straining large quantities of water, the only kinds which reduced materially the number of bacteria as found in the hydrant-water were those in which, by the addition of a minute proportion of a suitable salt, usually alum (as approved by the general experience of years in many districts), the suspended particles with the organic matter are caused to settle more rapidly, and then these form a deposit upon very fine sand, through which water is forced. From several examinations of a filter of this type, which in every case rendered the water much freer from germs than the original (unfiltered) water, I once found the filtered water wholly sterile, while the (Brooklyn) hydrant water of the neighborhood at the same time showed 397 germs developing from each c. c. This particular filter was constructed on the principle of Prof. A. R. Leeds, who informs me that the alum was present in the proportion of only 1 part in 100,000 of water. I could not, by the ordinary tests, detect the presence of this salt, and such a small amount can cause no appreciable harm. The alum used is probably decomposed, and its elements taken up by the organic matter and bases present. As previously stated, the sterilization of the water is here caused by mechanical and not by chemical action. In my tests the typhoid bacillus of the first agar culture from a recent spleen was not destroyed by standing for forty-eight hours in a solution of ten times the strength of that employed in these filters, while many other bacteria were alive after standing for forty-eight hours in an alum solution of 1 part to 1000 of water, which sufficed to destroy the typhoid bacillus in that time.

In the present stage of chemical knowledge there seems no sufficient evidence that in water these micro-organisms evolve the organic alkaloids which are considered to be produced when harmful bacteria are introduced into the system and by their action there cause disease. What the exact nature of the volatile organic constituents carried over in distillation may be, and whether they be deleterious or not, rests for the science of the future to determine. The process of boiling previous to vaporization in the still must kill all harmful bacteria, and all other bacteria that I have ever encountered in the original hydrant water from which such water as the well-known "Hygeia" is prepared. The bacteria which I have found in specimens of this excellent distilled water that I examined must have been introduced from without after the water was condensed from the still and before the bottling process was completed, and in this I have never found any other than harmless varieties. Water condensed from various stills of approved patterns I have found sterile. The relatively large amount of free ammonia found in such distilled waters (it being several times greater than any detected in the Croton hydrant water) does not seem to me to be objectionable. The condensed steam produced in distilling, and which constitutes the Hygeia water, represents a much larger original amount of water than results after the process of vaporization and condensation is completed, and the ammonia may besides come from the air and from other sources.

To those who desire a water freer from alkaline earths than the ordinary "hard" water which they may have to drink, it should be mentioned that the process of heating, in the sterilization by boiling which I so urgently recommend when it is necessary to drink suspected water, drives off free carbonic acid and so causes the deposition as an insoluble sediment of the carbonate of lime and other objectionable salts which form the so-called "temporary hardness." The water is thus rendered "softer."

When boiling is resorted to because of actual infection of the water, it should be carefully done. It is best to have the water, perhaps after a preliminary boiling and straining, decanted into bottles, each holding say a quart, and these covered with a suitable glass cap or plugged with cotton or provided with a clean stopper loosely dropped in, and then the bottles placed in a kettle or cauldron in the absence of a steaming apparatus. This is heated and kept near the boiling point[1] for an hour. Then

[1] Although Miquel and others have called attention to micro-organisms retaining their vitality at a temperature above 71° C. (160° F.), these seem to have no harmful character. See Glo-

the whole is allowed to cool, and the bottles may be placed near ice; but into the water thus carefully prepared it is not advisable to put ordinary ice, for harmful bacteria may retain their vitality in ice longer than in water. Pure water loses all its excellence when unwholesome ice is melted in it. For those to whom the taste of boiled water is unpleasant, weak teas, wine, or other savor may be added to mask the absence of the more agreeable taste imparted by the process of aërification (which under ordinary conditions may itself be a means of adding bacteria to the water).[1]

There are ingenious hypotheses as to the utility of nitrifying bacteria in overwhelming other varieties and conjectures that, if recognized and planted upon filters, these nitrifying ones would safely destroy the pernicious ones; but among these theories I know of none to be seriously recommended. The recent results in America and various parts of Europe are so inconclusive and diverse that the brief limits and practical aim of this paper will hardly permit any further consideration of them.

Summary.—Boiling sterilizes water, and within thirty minutes will have killed harmful bacteria.

Drugs and other agents acting chemically, if used in amounts which are commonly safe, do not sterilize water.

The prolonged heat which water undergoes in the usual process of distillation destroys all germs which may be in the water undergoing the process.

Ordinary filters, even if satisfactory as strainers, fail to remove all bacteria from drinking-water. So far from lessening the number in the original water, the filtering substance may allow a more rapid multiplication than these microörganisms would ordinarily undergo in the unfiltered water on standing, and the germs of disease, even if held back by the filtering substance, may be harbored in all filters.

The finer the substance through which the water passes, and the lower the pressure, the more perfect is the action of the filter in holding back the bacteria.

Of all substances thus far furnished for domestic filters, porous rebaked porcelain, carefully selected, I have found to be the best. If thick and strong enough to allow the use of a large surface, and the substance remain perfect (without flaw or break), this may yield a fair flow of clear water, free from all bacteria; yet under our ordinary Croton pressure of one atmosphere or less, this yield is only in rapid drops, unless the apparatus be complex.

To insure the permanency of this action, the filter should be occasionally sterilized throughout, by steaming or by other means; for, under prolonged pressure, various kinds of bacteria can go through, and in the copious organic matter collected on the filter some harmful microörganisms can retain a high degree of vitality for weeks longer than I have ever found them to live in pure water.

Where filtering is really necessary, it is in general best for the community that it be done carefully on a large scale through sand-beds upon which a fine layer of organic and inorganic matter is expressly produced by sedimentation, because of its valuable action in holding back the great majority of the bacteria.

A bad water filtered is less desirable than a pure water in its natural state. When, therefore, filtration is employed because of real danger of infection, the filtered water should, as a rule, be furthermore boiled, as the entire absence of sediment and cloudiness does not insure that the bacteria of disease may not have made their way through the filter.

big (*Ztschr. für Hygiene*, iii., 2, pages 322 and 331). The spores of the "red potato bacillus," which he reports as very resistant even to steam heat, have never appeared in waters that I have seen; and the time limits for boiling which I have elsewhere given, after careful observation, hold true as regards all known disease-producing bacteria.

[1] Berckholtz (Arb. aus d. K. Gesundheitsamte, 1889, p. 14) (employing exsiccator and four days of agar culture, dried on silk thread) found that the cholera spirillum, contrary to earlier results, retained its vitality in air for over two weeks.

In connection with my experiments I have found the typhoid bacillus to live dried on the glass of a test-tube, for a week and longer. I have made no special attempt to determine how long it will live in a dry state

Tommasi-Crudeli, Dr. Bern. Schiavuzzi in Pola (Rendi Conti della R. Accademia dei Lincei, Dicembre, 1886) say with others that the malaria bacillus, which they, like Klebs, found in soil and air, may be carried by and live in water. The same is true of many other bacteria introduced into water.

A CASE OF ANTIPYRIN POISONING.

By WILLIAM PERRY NORTHRUP, M.D.,
of New York.

The new drug, so efficient in relieving headaches, is, at present, so much used and so little suspected of danger, that it seems desirable to communicate a recent unpleasant experience. In speaking with different practitioners and neurologists, I learn that many times forty-five grains of antipyrin are given at one dose to an adult, and twenty-five to a child above five years of age, and they all add, "No drug is more satisfactory in its results."

The patient was Mrs. L., aged forty-four years, married, mother of three children. She had been subject to headaches (hemicrania) since childhood, but the attacks had been more severe and frequent since the birth of twins, after which she was sick in bed seven months, and, as she says "her nerves were completely upset—and her whole system." During convalescence, the patient used her eyes excessively, reading, doing fancy work, etc.

Since the twin birth, four years ago, she has been exceedingly nervous, and, as she adds, "nervous by spells," and "extremely irritable," with occasional numbness of the extremities and "lump" in her throat. At two different times in her life she

has passed over a year without an attack of headache. Immediately before the lapse of the second year she had suffered from rheumatism, and taken for its relief "salicylate." She believed the remedy had been the cure of the headaches, as well as her lameness. She has, however, since tried the remedy, and come to a contradictory conclusion.

With the two exceptions above referred to, she has usually had a headache every three or four weeks.

She has observed that over-fatigue and excitement are sure to be followed by her customary attack; also that overheating or chilling of the body provoked them, and that they came at longer intervals in summer than in cold weather. During the fall months of 1887, the intervals became shorter. Occasionally two attacks came within a period of ten days, and during the prostration of one of these quick recurring attacks I made my first observations on the case.

The patient, with the headache, lay with her eyes closed, raising her lids reluctantly and with effort when spoken to, answering questions in monosyllables, and as though irritated at the disturbance. Her face at times pale, again moderately flushed on the cheeks and pale about the lips, wore an expression speaking for itself;—"want to be left alone." Pulse was full, slow, and regular. Pupils normal in size, equal, and reacting promptly.

The headache was limited to the left hemicranium.

No remedy was administered at this time, as the attack was already beginning to wear off.

During the succeeding interval of relief, while the patient was in her best possible condition of general health, she was put to bed, and examined carefully —lungs, heart, liver, abdomen, uterus, and ovaries, condition of arteries, general circulation, accumulation of adipose, etc. Nothing was found abnormal. The patient was well nourished, free from disease, from malpositions, and from localized tenderness. She was large of frame, well proportioned, giving the impression of one with strong, enduring physique.

Examination of urine was negative—reaction, specific gravity, color, odor, and quantity; examinations for albumin and sugar bore testimony that the kidneys were doing their work perfectly. Ophthalmoscopic examination showed normal disks, vessels, and retinæ.

Was the headache, then, due to error of refraction? The eyes were examined under atropine, with test lenses, and the result was the patient was fitted with glasses for moderate hypermetropia (1.25 spherical) and instructed to wear them three weeks during waking hours. They made the vision clearer, and the head less confused while shopping and while upon the streets, but did not ward off the headaches. To remove the cause then, seemed impossible.

There yet remained the new drug, the magic remedy, "the most satisfactory drug that I know of," says one; "that I prescribe with the utmost confidence," says another. "I do not hesitate to send it to a patient at a distance, whatever the cause of the headache."

Antipyrin in fifteen grain capsules was ordered and carefully written directions were left against the time of the next attack. The patient was instructed when she felt the headache coming to go to bed, take one capsule and with it a tablespoonful of whiskey with an equal volume of water.

It happened after the usual short interval that the patient awoke in the morning with a headache of the customary kind, and without rising from her bed called for a capsule. The directions as to the whiskey were mistaken, and she took whiskey and water together to the amount of a tablespoonful. She took then fifteen grains of antipyrin with a half tablespoonful of whiskey upon an empty stomach. She felt no apprehension, no nervousness on taking the remedy; but took it rather with confidence that it would help her if not wholly relieve her.

As soon as she had taken the dose she felt "queer," that "the medicine was going all through" her, was mounting to her head; she had sense of "smelling pepper," and she began to sneeze—sneezed fully a dozen times in rapid succession. This was followed by an urgent desire to defecate: she arose from her bed to get to the commode and fell heavily upon the floor, unconscious. The next remembrance was of a sharp pain from a hypodermatic injection of whiskey in her wrist and of some one bending over her urging her to drink from a glass.

The patient lived but two blocks from my office and I was not long in getting to her in answer to an urgent summons. I found her lying on the bed, her eyes closed, her countenance pale leaden, her "jaw dropped"—in a condition of extreme general relaxation. There was no pulse at the wrist, no sensitiveness of conjunctiva, and no amount of irritation aroused her. I immediately injected twenty minims of whiskey into the first available place and shortly repeated it. The second injection caused her to move her hand to avoid the pain. In a few moments more she opened her eyes with a wild staring look and presently began to vomit frothy mucus. This "dry" retching continued more than an hour, at the end of which time the patient was nearly exhausted though clear in her mind. Her headache was not relieved.

For a week she kept close to her room feeling that for some reason the medicine had upset her digestion and that her headache, though but little prolonged, had been more than usually agonizing.

At the end of a month my patient was quite recovered from her treatment and was again suffering as usual from her periodic visitant. During this time she heard of numerous friends who had been relieved by the remedy—many ladies of her church who carried antipyrin in their purses and during the long prayer, if headache threatened, slipped a capsule or powder or tablet into their mouths and the attacks did not come on. Even after her former experience, though I suspect she never fully realized how the antipyrin had affected her, she consented to try the remedy in one-third the previous dose I took the precaution to get the medicine from a reliable down-town drug firm and directed that the tablet of five grains of antipyrin be taken on a full stomach and *with* a tablespoonful of whiskey with water.

At the first symptoms of her next headache the patient took her capsule and whiskey as directed and only communicated the fact when she began again to "feel queer."

When the sister of the patient learned that the remedy had been taken, she hastened for me and I arrived at the side of the victim of headaches within a few moments.

She was lying on a sofa with her head raised. her face this time flushed deep crimson, her neck, wrists, and hands covered with urticaria, tearing the clothing from her neck and chest, sighing and gasping for breath with a worried and anxious counten ance —comparable only to the severe dyspnœa of Bright's disease.

The pulse at the wrist was rhythmic, moderately full, but without good tension. The urticaria developed its characteristic wheals rapidly over all the limbs of the patient, the irritation tormenting her and adding to the already existing extreme restlessness. After an hour the severity of the symptoms began to subside.

She has since continued to have periodic headaches. Her general health is good and she wears constantly the glasses fitted during the course of treatment.

To test the quality of the antipyrin used in the first dose, I gave the remaining capsule of fifteen grains to Dr. T. Halstead Myers, who tried it on an appropriate case in his dispensary practice. He reported its action as like that of good antipyrin. The second dose of five grains came from Frazer & Co., New York.

Briefly to recapitulate:

Fifteen grains of antipyrin caused in an hysterical woman—

Sneezing.
Evacuation of the bowels.
Syncope (thirty minutes).
Vomiting.
Prostration.

Five grains caused—

Sneezing.
Urticaria and diffuse hyperæmia of skin.
Dyspnœa.

MEDICAL PROGRESS.

The Use of Glycerine Enemata and Suppositories.—Dr. Alex. S. Polübinsky, of St Petersburg, publishes in the *Vratch*, Nos. 1, 3, and 4, 1889, an ably written and very instructive paper on the treatment of constipation of various forms by means of glycerine, administered in the shape of either enemata or suppositories. The paper is based on fifty cases from Prof. V. A. Manasseïn's clinic, of which in forty glycerine enemata and in ten Boas' suppositories were employed. As regards the quantity of glycerine used for an enema, in one case 1 gramme was injected; in nineteen cases, 2 grammes; in thirteen, 3; and in seven, 4. The suppositories contained invariably 2 grammes of the drug, the constituent being either gelatine or cacao butter. Forty-five patients were men, aged from twelve to fifty-five, and five women of from ten to forty. The following brief summary deserves to be placed before our readers.

A. *Results of clinical experiments.*—1. In 23 cases (46 per cent.) the administration of glycerine was followed by abundant motions; in 19 (38 per cent.), by scanty stools; and in 8 (16 per cent.), no action of the bowels took place. 2. The first group includes: *a*, such cases where the presence of fecal masses in the S. Romanum could be ascertained both by palpation and percussion; and *b*, such ones where the fecal accumulation could be elicited only by percussion. In the former subdivision the stools passed were solid and normally shaped; in the other they were rather loose (gruel-like). The first "call" was felt by the patient usually in one or two minutes to increase gradually in its intensity, and to be followed by a motion in three, four, or five minutes. The action was not attended or followed by any unpleasant sensations, except one case, where a rather vivid local burning was experienced by the patient for about fifteen minutes. A controlling enema, made of two and a half or three tumblerfuls of water, and administered after defecation, gave negative results (that is, the water returned unchanged) in 19 cases, while in 4 the fluid was found to be intensely stained with fecal matter. In one of the former 19 cases, however, a subsequent administration of castor-oil (℥j) was followed by a rather abundant stool.

3. The second group includes: *a*, such cases (6) where an ordinary enema, administered subsequently, did not bring about any action of the intestines; palpation detected fecal accumulation only in the sigmoid bowel, the cæcum being empty; *b*, such cases (9) where a glycerine enema produced only scanty stools, but a subsequent ordinary enema was followed by a free discharge; the examination proved that both the sigmoid bowel and cæcum (in other words, the whole large bowel) contained solid or loose fecal masses; *c*, such cases (4) where an after-glycerine aqueous enema remained inactive, but a dose of castor-oil caused abundant motions. The examination gave the same results as in the preceding subdivision, the cases concerning constipation of two or three days' standing. 4. The third group refers to such cases where glycerine gave rise solely to fleeting "calls," but otherwise remained quite inert, stools following a subsequent administration of ordinary enemata or castor-oil. 5. In the shape of suppositories, glycerine acts somewhat more slowly than when injected into the rectum, stools taking place in ten, fifteen, or eighteen minutes, which depends simply upon the circumstance that gelatine or cacao butter require a certain time for their liquefaction. 6. The "calls" induced by glycerine are short-lasting, and when the patient postpones or inhibits his defecation beyond the time indicated above, it may sometimes happen that no stool takes place at all.

B. *Theory of the action of glycerine.*—1. The eccoprotic action of the drug cannot possibly be attributed to anything like its softening or liquefying fecal masses, since (*a*) water, milk, olive-oil, and other fluids, when injected into the rectum in similarly small quantities (6 grammes or so), fail to excite any motions; (*b*) when injected in such trifling doses, glycerine is rapidly absorbed by the mucous membrane; (*c*) stools occurring after glycerine enemata are usually solid and sausage-shaped—

that is, show no signs of liquefaction; (*d*) neither are the masses covered with any watery or slimy layer; (*e*) stools take place within a short time after the administration of glycerine, while the liquefaction process should necessarily require a comparatively long interval. 2. Glycerine undoubtedly causes a local irritation (probably congestion) of the rectal mucous membrane, since (*a*) all patients experience a sensation of warmth or some burning in the rectum; (*b*) there is observed a slight rise of the rectal temperature after the enemata; and (*c*) on a digital exploration during "calls" there are detected fairly strong contractions in the upper portion of the rectum. The drug, however, does not increase the secretion of the rectal mucous membrane. 3. The irritation lasts until there is a complete absorption of glycerine. Possessing a great absorbability, the substance very rapidly penetrates into the (very rich) lymphatic vessels of the rectum, and, having disappeared from the latter, ceases to act. Hence it is unable to establish any considerable peristaltic action of the bowel lying higher up from the sigmoid intestine.

C. *General conclusions.*—1. The best results are obtained from glycerine in cases of fecal accumulation in the rectum and S. Romanum. 2. In cases of fecal stagnation occurring higher up (typhlitis, general intestinal catarrh, etc.) the drug is altogether useless. 3. Glycerine enemata or suppositories are indicated especially (*a*) as a means for "training" the rectum—that is, for exciting regular rectal "calls"—in cases of habitual constipation; (*b*) in cases of constipation caused by fecal accumulation in the large bowel, and depending upon an atonic state of the intestinal muscular coat, as occurring most commonly in women after parturition. Since intestinal atony in such patients is usually accompanied by a similar state of the abdominal press, a systematic employment of glycerine enemata must be obviously supplemented by daily abdominal gymnastics and massage, faradization of the abdominal muscles, and intra-rectal galvanization; (*c*) in such cases where the rectum and sigmoid bowel are mechanically compressed by pelvic tumors (including early pregnancy); (*d*) in retro-version of the uterus associated with pressure on the rectum; (*e*) in children suffering from scrofula of a torpid variety; (*f*) in such persons who experience difficulty and pain on defecation because of their feces being very hard, and who accordingly often abstain from stools. Here glycerine proves useful mainly as a local lubricant. 4. On the whole, glycerine enemata should be preferred to suppositories, since the latter (*a*) are more expensive; (*b*) their use is rather uncleanly (they easily melt in the hands, etc.); (*c*) their introduction into the rectum by a finger represents a by far more unpleasant procedure than an injection by means of a syringe. 5. In one group of cases, however, suppositories are to be preferred to enemata. It is the group mentioned (sub. 3. *f*) where a relatively slow action is desirable, and where the lubricant effects of glycerine are intensified by those of cacao butter.—*London Med. Recorder*, March 20, 1889.

Tracheotomy in Chronic Diseases of the Larynx.—DR. LENNOX BROWNE concludes a paper on the relative merits of early and late tracheotomy in chronic disease of the larynx, with the following *résumé*:

1. Early tracheotomy, with retention of the tube, is advocated in chronic sub-glottic laryngitis and in perichondritis, causing sub-glottic stenosis.

2. Tracheotomy, either early or late, is not advocated in tuberculous laryngitis.

3. It is but rarely necessary in lupus.

4. It is to be performed in œdema, occurring during the course of a syphilitic laryngitis, only after patient treatment has failed; and when performed for such a condition there is a fair chance that the tube may after a time be dispensed with.

Tracheotomy is preferable to attempts at dilatation in the case of syphilitic stenoses, and the tube has generally to be retained for life. Not infrequently the operation fails on account of inability to reach the seat of stricture.

5. The operation may be necessary in benign growths of the larynx, and, when indicated, is better performed early.

6. Early tracheotomy is strongly advocated in malignant disease of the larynx as the safest and surest means of prolonging comfortable life, and in this respect is superior to attempts at radical extirpation.

7. Tracheotomy is necessary in cases of bilateral paralysis of abduction, and should not be delayed if treatment fails to arrest the progress of the disease. It is seldom successful in cases of dyspnœa caused by pressure low down in the trachea.—*Journal of Laryngology and Rhinology*, April, 1889.

To Remove Summer Freckles.—

℞.—White precipitate, Subnitrate of bismuth } āā 4 parts.
Glycerite of starch . . . 15 parts.—M.

Every second day apply a coating of this preparation to the freckles.

Washing the affected parts with the following lotion mornings and evenings will also suffice to remove the freckles.

℞.—Sulpho-carbolate of zinc . . 4 parts.
Glycerine . . . . . 60 "
Alcohol . . . . . 30 "
Orange-flower water . . . 45 "
Rose water . . . . . 250 " —M.

—*L'Union Médicale*, March 23, 1889.

Tuberculosis of the Peritoneum.—From material consisting of twenty-five fatal cases of tubercle in which the peritoneum was either primarily affected, or in which it had been affected for a prolonged period, DR. HEINTZE deduces some interesting facts which he publishes in the form of an inaugural dissertation. All the cases occurred in the Breslau clinic, and necropsies were made in every instance, so that there was no doubt about the diagnosis.

He divides the cases into three groups: 1. Those where there was a copious fluid effusion. Here the clinical symptoms bore considerable resemblance to those met with in cases of ascites from congestion. From this condition they were distinguishable by the very large amount of albumin contained in the fluid drawn off on tapping. No tubercle bacilli, however, seem to have been found. After the distention had been relieved by the removal of the fluid, the thickened peritoneum could frequently be felt, and peritoneal friction could be de-

tected. These effusion cases formed the most numerous of the three groups. 2. The plastic form, producing a coating of tumor-like bodies. The pseudo-tumors formed by the exuded plastic matter could generally be distinguished from real tumors by the ill-defined character of their edges. This group comprised nine of the twenty-five cases, and in five of them there were tumors of considerable size. In these plastic inflammations there is generally a good deal more pain than where there is much fluid effusion; there is a tendency, too, to the formation of kinks in the gut and bands, which cause obstruction, so that fecal accumulations and ileus are not uncommon. 3. The latent form, where there is neither any great amount of effusion nor much plastic exudation. These are the cases which used to be classed as tuberculosis of the peritoneum, in contra-distinction to those in which the inflammatory symptoms were more prominent, which were denominated tubercular peritonitis—a distinction which Dr. Heintze thinks is unsatisfactory.

One remarkable point is mentioned in the dissertation—viz., the frequency with which tubercular disease of the peritoneum is associated with cirrhosis of the liver. This was found in seven of the twenty-five cases. Pleurisy was found twenty times, and signs of scurvy twice. In many cases there were long remissions, so the prognosis is not necessarily quite so grave as it is usually supposed to be. The patients died mostly from general tuberculosis, very rarely from perforating peritonitis or from tubercular peritonitis. Most of the cases occurred in the male sex, frequently amongst men addicted to drink. In three instances an injury to the abdomen had preceded the commencement of the symptoms.

As to operative measures, the only good that can usually be done is to empty the peritoneal cavity, so as to free the vessels from the pressure of the ascitic fluid; paracentesis only accomplishes this imperfectly. In the plastic form, operative measures are, as a rule, useless, it being impossible to remove all the diseased matter, as can be done in tubercular disease of bones or joints; still there are circumstances under which an operation may be imperatively called for—as, for example, where ileus is produced by the formation of constricting bands. Dr. Heintze does not think any advantage is to be expected from opening the abdomen and dusting the viscera with iodoform.—*Lancet*, April 6, 1889.

Antiseptic Midwifery at Liege.—In a paper read before the Liège Medical Society, by Dr. Fraipont, the method adopted at the obstetrical clinic there for rendering labor aseptic is described. The plan is based upon the researches and experience of Döderlein, and is very similar to that employed at the Leipsic clinic, where it is said that since it was commenced the number of absolutely normal puerperal periods has increased as much as eighteen per cent. In Liège every woman is given, on admission, a general bath, and minute precautions are taken to insure cleanliness. During labor the vagina is irrigated each time that an examination is made, by means of a three per cent. solution of creolin, which is injected through a glass tube introduced together with the index finger, which is made to reach as far back as the cervix. The labia are then occluded, so that the fluid may distend the vagina and obliterate all the rugæ, and reach even into the interior of the os, detaching and washing away the mucus accumulated there. From one to two quarts of the solution is used for each irrigation. Immediately after the placenta is detached, another irrigation is administered, which is repeated regularly during the first few days of the puerperal period. It is necessary to say that no lard is ever used, a substitute being found in a saponaceous preparation which is known under the name of "molline," and which, while acting as a detergent, is freely soluble in water.

Dr. Fraipont is much pleased with creolin for obstetrical purposes, considering it superior to the more generally used antiseptics. One advantage he mentions, which does not seem to have attracted attention generally, is, that it makes the mucous membrane soft and supple, giving it the feeling of having been oiled. When used in gynecological operations, where it is necessary to obtain a good view of the parts, it has, it is true, the disadvantage of obscuring the lesion with a milky fluid. This inconvenience is, of course, not felt in midwifery. In Dr. Fraipont's opinion, creolin ought to be given to midwives instead of such a powerful and dangerous antiseptic as corrosive sublimate, which, it is to be feared, they sometimes use with more zeal than discretion.—*Lancet*, April 6, 1889.

Absolute Rest in the Treatment of Tetanus.—Dr. E. de Renzi (*Rivista Clinica e Terapeutica*, January, 1889) states that since the year 1882, when he first tried this method, he has treated six cases of tetanus, five of which recovered. The following are the author's rules for this treatment:

1. The patient, whose ears are closed with cotton or wax, must remain in a perfectly dark and noiseless room, and should be told that recovery depends upon his keeping perfectly quiet.

2. Carpets should be laid in the sick-chamber and adjoining halls and rooms, in order to deaden all footsteps.

3. The patient's room should only be opened every four hours, and then with the greatest care. All food should be in the liquid form, such as milk, eggs (beaten), soups, wine and water, etc., and should be brought to the bedside in a cup.

4. One should enter the sick room with a covered light, being rather guided by the patient's moans than by one's sight.

5. If the patient be constipated, neither laxatives nor enema should be administered; nothing whatsoever is to disturb the patient's rest.

6. If the pains are intense, ergot and powdered belladonna may be resorted to.—*Bulletin gén. de Thérapeutique*, March 30, 1889.

Treatment of Eczema.—The *Revue gén. de Clin. et de Thérap.* of March 28th gives the following formulas for this affection:

Dr. Unna recommends for pustular eczema:

℞.—Oxide of zinc, Gelatin } āā 15 parts.
Glycerine . . . . 25 "
Water . . . . . 45 " —M.

Heat slightly, and apply with a camel's-hair brush.

Dr. Veiel, of Canstatt, recommends the following for pruritus:

℞.—Powdered starch . . . 98 parts.
Powdered camphor . . 2 " —M.

In the squamous stage of certain chronic eczemas the following is recommended:

℞.—Tar . . . . . 1 part.
Alcohol . . . . . 3 parts.—M.

Large Vesicular Calculus in a Child.—M. DURET, in the *Journal des Sciences méd. de Lille*, records the following remarkable case of vesical calculus in a male child of six years. The symptoms of stone had existed for two or three years. When the sound was introduced by the author into the urethra it impinged almost at once upon an enormous stone. There was, practically speaking, no vesical cavity, the mucous wall was in contact throughout with the calculus, and the urine escaped drop by drop continuously. Examination by the rectum revealed a large and hard tumor behind the pubes, which was formed by the bladder containing the stone. The urine was albuminous. The bladder was opened by the suprapubic method, but after this had been done it was found impossible to extract the calculus, owing to the firm way which the bladder had contracted upon the concretion. The finger of an assistant having been passed into the rectum, the bladder was raised *en masse*, and thrust forward; the stone was then broken up with a chisel and mallet, and the fragments removed. A drainage tube was fixed in the wound, no suture being placed in the bladder wall. The calculus weighed sixty grammes, and was composed of an oxalate of lime nucleus and phosphates. —*Medical Press*, April 3, 1889.

The Microbes of the Stomach.—DR. ABELOUS, at a meeting of the Academy of Sciences, stated that he had isolated from the products of washings from his own stomach, while fasting, sixteen species of microbes, of which he has studied the morphological characters, as well as their action upon alimentary substances (food-stuffs).

Of these sixteen species, seven are known: the sarcina ventriculi; the bacillus pyocyaneus; the bacterium lactis aërogenes; the bacillus subtilis; the bacillus mycoïdes; the bacillus amylobacter, and the vibrio rugula; of the nine remaining undescribed, one was a coccus, and eight were bacilli.

All of these microbes resist the action of artificial hydrochloric acid (1.7 parts of HCl to 100 parts of water) for a lapse of time much longer than the duration of stomachal digestion; especially is this the case when the cultures are rich in spores.

The following are the general results of the action of these microbes on alimentary substances (each species having an action more or less energetic): Ten attack albumin; twelve fibrin; nine gluten; ten transform, more or less completely, lactose into lactic acid; eight have a converting action on cane-sugar; eleven help, more or less, toward the formation of alcohol from glucose; thirteen assist the formation of glucose from starch.

The most remarkable results, however, are obtained from the combined action of all these microbes, at the same time, upon each alimentary substance. Under these conditions (especially when some chalk is added) one will observe a very rapid and very energetic decomposition with liberation of gas and the formation of such products as leucin, tyrosin, indol, skatol, and certain fatty acids and ammoniacal compounds. Considerable quantities of alimentary substances can be thus decomposed in a very short time.—*Revue de Thérap.*, April 1, 1889.

Carbolic Acid and Iodine in Whooping-cough.—DR. ROTHE, having met with some unfortunate cases of whooping-cough treated with antipyrin, turned his attention to a combination of iodine with carbolic acid in the treatment of this affection, and with this combination he has obtained excellent results. He has, he says, treated hundreds of cases, and cannot remember one in which the affection lasted longer than four weeks, besides which no fatal case occurred. The mixture he employs is as follows: acid. carbol., 15 gr.; sp. vin., 15 gr.; tinct. iod., 10 gtt.; tinct. bellad., 30 gr.; aq. menth. pip., 2 oz.; syr. opiat., 150 gr. A teaspoonful of this is given to children over two years of age every two hours. When this treatment was carried out from the commencement of the complaint the severity was never great, and even when it was only begun in cases that had been going on for six or seven weeks it soon cut them short.—*Lancet*, April 6, 1889.

Local Antiseptic Treatment of Erysipelas.—DR. NUSSBAUM (*Gazette Hebdomadaire*, March 29, 1889) replaces antiseptic subcutaneous injections for erysipelas by the following treatment:

1. Anoint the erysipelatous surface with the following ointment:

℞.—Ichthyol } . . . āā 15 parts.
Lanoline }

2. Immediately after having applied the above, envelop the affected portion with salicylated cotton.

This mode of treatment arrests the progress of erysipelas and diminishes the pain and the cutaneous inflammation in the space of from a few hours to three days.

Stimulating Liniment.—

℞.—Phosphorized oil . . 50 parts.
Chloroform }
Tincture of nux vomica } āā 10 parts.—M.

Rub the paralyzed members three times daily for five minutes with a flannel saturated with this mixture. After which envelop them in salicylated cotton.—*L'Union Médicale*, March 24, 1889.

Injections of Pilocarpine for Traumatic Tetanus.—DR. LUIGI CASATI reports having used pilocarpine injections with success in three cases. The results obtained from the author's experiments upon animals are, according to the *Deutsch. med. Ztg.*, as follows: Of 9 tetanized rabbits treated with pilocarpine 7 recovered and 2 died, whereas of those not so treated, all died as soon as the first symptoms of tetanus manifested themselves. Recovery is generally rapid, but after the symptoms of tetanus have disappeared they always recur a second time, and end either in complete recovery or death. Several hours after the injection a distinct division of the symptoms takes place. Trismus is the last symptom to disappear. The tetanized animals support doses of pilocarpine which, under normal circumstances, would prove fatal. Pilocarpine does not interfere with the development of the tetanus bacillus; should one inject Brieger's ptomaine in conjunction with pilocarpine, the rabbits will show no symptoms of ptomaine poisoning. but only the curative action of pilocarpine.—*Wiener med. Presse*, March 17, 1889.

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SATURDAY, APRIL 27, 1889.

THE EFFICIENCY OF WATER FILTERS.

IT is well known that drinking-water may be the carrier of the germs of disease, and also be rendered otherwise unwholesome by the admixture of foreign substances both organic and inorganic. It is also a fact that drinking-water supplied to cities is often below the proper standard of purity, and in some instances positively bad. The failure of city corporations to supply water of good, wholesome quality, or at least of the appearance of such, has made it necessary for individuals to resort to means of supplying the deficiency. The expedients adopted for this purpose are mainly boiling and the various methods of filtration.

Domestic filtration is commonly employed to strain out suspended matter, and thus clarify the water. A more important object is the removal of bacteria. The efficiency of the various kinds of filters in the market in removing suspended particles is easily tested, but the determination of the efficacy of different filtering materials in removing microörganisms requires skilful manipulation in the biological laboratory. Chemistry failed to furnish the desired proof, and no means was available until the culture process was introduced. The application of this test has led to important discoveries, which have exposed the imperfections of filters usually selected for household use, and stimulated the search for materials better adapted to meet the newly imposed and most essential requirements of the process of filtration.

In an elaborate paper on the efficacy of filters, and other means employed to purify drinking-water, read before the Section of Public Health of the New York Academy of Medicine, on April 5th, and presented in the last and present issues of THE NEWS, DR. CURRIER has given the results of carefully conducted experiments, which show how little dependence can be placed on the usual methods of domestic filtration in removing infective matter from water. He shows that domestic filtration, as commonly practised, is little else than a process of straining, which clarifies the water but fails to remove bacteria. In fact, old filters, constructed of improper materials, and even sterilized filters of the best forms, after a comparatively short time, furnish water with a larger percentage of bacteria than that contained in the water before filtration. This result is due to the filtering materials, as charcoal, sand, and even porous stone and porcelain, becoming charged with microbes, and forming a suitable nidus for the development of these minute forms of life.

There is a limit to the purifying powers of even the best constructed filters. Their action, at best, is but temporary. The materials should, therefore, be frequently renewed, and porcelain and stone should be sterilized by heat, if the function of purification is to be maintained.

Dr. Currier's conclusions, based upon very elaborate experiments, are, briefly: That boiling for thirty minutes will destroy harmful bacteria; that chemical agents are useless for sterilizing drinking-water; that ordinary filters do not remove all bacteria from drinking-water; that filters of porous rebaked porcelain are the best, but to insure permanency of action they should be occasionally sterilized throughout by steaming, or other means. When filtration is necessary, it should be conducted carefully on a large scale through sand-beds upon which there is a fine layer of organic and inorganic matter expressly produced by sedimentation. When domestic filtration is employed, on account of danger of infection, the water should, as a rule, be furthermore boiled.

TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

The treatment of abdominal surgical affections has of late enormously outdistanced their diagnosis. Likewise it is true that all cases which finally come to the knife would present infinitely more recoveries could their exact existing condition and subsequent

course be recognized from the onset. So also exploratory incision of the peritoneum in the hands of competent men has come to be intrinsically so safe a procedure that, considering the ulterior consequences of an expectant course, early resort to it is justified and indicated in many suspicious cases. We believe that were the remote terminations of one hundred cases of obscure abdominal disease treated upon the expectant plan compared with those of another hundred indiscriminately explored during the earlier stages, the results would preponderate in favor of the latter method to a startling degree. This, we believe, would be the conclusion were all classes of abdominal disease included. Limiting the series to acute cases, the favorable percentages would be again greatly increased; but, excluding therefrom all save those presenting symptoms of acute intestinal obstruction, we should expect that the terminations would overwhelmingly indicate surgical interference in every case at the earliest onset of suspicious or presumptive symptoms.

These remarks have been elicited by a recent communication to the *Archiv für Chirurgie*, 1889, Band 38, Heft 2, from PROF. VON WAHL, in which he narrates the histories of three cases of volvulus, and lays particular stress upon the likelihood and dangers of septic complications of the later stages of intestinal obstructions, and their avoidance by earlier surgical interference. His first case, a female, aged nineteen, was operated upon four and a half days after the onset of symptoms of obstruction originating shortly after a severe lifting strain. Sanguinolent serum in quantity was present in the abdominal cavity, and a coil of small intestine was twisted and bound beneath a mesenteric band in the left hypochondrium. Upon puncturing, emptying, and untwisting the intestine, the band disappeared, and the gut quickly resumed its normal appearance. The knife punctures were closed by suture, and the peritoneum irrigated. Convalescence was retarded and endangered by severe septic pneumonia, but recovery finally ensued. Case two occurred in a female pregnant six months. Abortion took place five days after the onset of obstruction symptoms, and operation was performed on the sixth day. Shortly before the beginning of pregnancy a tumor had been removed from the left side of her pelvis. Upon section, one portion of small intestine was found fixed by adhesions in several places, and around this fixed portion another loop of bowel had rotated through an arc of 180 degrees. The adhesions were separated by the knife, and the gut was then, without difficulty, unfurled. Convalescence in this case likewise was complicated by septic pneumonia, but the patient was ultimately cured. The third case was one of rare occurrence and interest. An adult male, after a severe lifting strain, soon experienced the usual symptoms of intestinal obstruction. Upon admission to the hospital three days afterward, a tumor six inches in breadth could be felt extending from right to left in a downward direction across the umbilicus. Section revealed a 180 degree rotation of the *whole small intestine* upon its mesenteric attachment, which latter made a firm constricting band. Intense congestion of the intestines and much sanguinolent serum were present. Death followed from general septic intoxication.

Von Wahl also quotes from the literature of intestinal obstruction cases where death succeeding operation was plainly caused by metastatic parotitis and pneumonia, by acute septic œdema of the glottis and lungs, and by pneumonia of the same nature as was encountered in his own cases. Septic poisoning and metastasis must, therefore, be held responsible for much of the shock, exhaustion, and subsequent complications which so often accompany cases of acute obstruction, especially by volvuli, which from their very nature should be most curable if the proper remedy is not too long withheld. For almost all varieties of the latter affection can most easily and safely be relieved by early operation; simply to untwist them is all that is usually required, but occasionally one or more adhesions must be parted or the bowel punctured before untwisting can be accomplished; thus dealt with in the early stages, the mortality should not exceed ten per cent. Hence, diagnosis of abdominal obstruction affections not having attained to the same high point of perfection as has their treatment, exploratory section should be our almost indiscriminate resource until diagnosis shall have become more exact and reliable.

WE chronicle with much pleasure the rare sense of justice shown by a municipality in its appreciation of the professional services of a physician. The municipal assembly of the city of St. Louis has just appropriated the sum of $500 to Dr. A. C. Bernays for medical attendance upon a member of the police force, from June to September, 1888, who, while in the discharge of police duty, received a gunshot wound of the abdomen, and upon whom Dr. Bernays successfully performed laparotomy.

At recent commencements the degree of Doctor of Medicine was conferred as follows:

Rush Medical College, Chicago	127
Memphis Hospital Medical College	62
University of Georgia, Augusta	53
College of Physicians and Surgeons, Chicago	48
Chicago Medical College	46
University of Buffalo	46
Detroit College of Medicine	43
College of Physicians and Surgeons of Keokuk	39
Indiana Medical College, Indianapolis	27
Woman's Hospital Medical College, Chicago	25
Arkansas State Medical College, Little Rock	22
Iowa College of Physicians	9
Georgetown (D. C.) University	8
Toledo (O.) Medical College	8

We regret to learn that a singular and painful accident has just happened to Dr. W. T. Ennett, one of the Vice-Presidents of the North Carolina State Medical Society, on the 17th instant. He was visiting at Garysburg, and was sitting before a fire-place, when suddenly a pulmonary hemorrhage came on. He became unconscious therefrom, and slipping forward his feet came in contact with the fire. Before help could reach him he was very seriously burned.

By the will of the late William J. Syms, of New York City, the Roosevelt Hospital will receive $350,000. Of that amount $250,000 is to be used in the erection of a surgical operating theatre, at the easterly end of the lot on which the hospital stands. The theatre is to be under the direction of Dr. Charles McBurney, and to be called the "William J. Syms Operating Theatre of Roosevelt Hospital." The remaining $100,000 is to be invested and the income applied to the expenses of the operating theatre.

The Medical College of the State of South Carolina proposes to elect a Professor of General Pathology and Practice of Medicine about the middle of next month.

In New York City, two physicians were invited to apply a so-called "hypnotic" test to an accused boy-murderer. Some persons having advanced the theory that the boy might have committed the crime while under the influence of another person's will-power, these two physicians were applied to, as experts in hypnotism, to experiment with the accused and to ascertain if he was a "subject." The results of the trials were negative, and one of the experts is reported to have said that the presumption was very strong that the boy had never been hypnotized. But what would have been the gain if the reverse had been the result?

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 18, 1889.

The President, Alfred L. Loomis, M.D., in the Chair.

Dr. E. F. Brush read a paper on

THE RELATIONSHIP EXISTING BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

Tuberculosis was not, he said, as many suppose, the result of civilization, since barbarous and uncivilized races were afflicted by it as severely as many of the most advanced civilized races. Neither geographical position nor climatic conditions were a factor in its distribution, although every known part of the globe, with the exception of a few isolated areas, was a habitat of the disease. After several years of close study of the affection, including a consideration of all accessible statistics and the habits of the people where it prevails, he had arrived at the conclusion that the only constantly associated factor is found in the in-bred bovine species. If a community was closely associated with in-bred dairy cattle tuberculosis prevailed there. In Hirsch's work on *Geographical Distribution of Phthisis*, it was stated that in Cape Colony this disease is oftenest met with among the Hottentots inhabiting the plains near the coast. These people are great milk-drinkers; they suck the blood from the jugular vein of the living bullock, and they churn together blood and milk for a drink; Professor Law, in his *History of the Ox*, informs us that in the vast regions of Southern Africa cattle abound and multiply, and proof that these African cattle are in-bred is found in the writings of Darwin and others. These facts relating to the cattle-breeding propensities of the negroes account for the statement of Daniel that phthisis is widely prevalent and very malignant among the people of the West Coast of Africa. In the interior plateaux of Southern Africa, on the other hand, the disease hardly ever occurs; and this immunity could be accounted for by the presence of the tsetse fly, since, where this insect exists, cattle, horses, and dogs cannot live.

Coming to the civilized world, Dr. Brush first drew a comparison between Denmark and Iceland, where the climatic conditions are nearly the same. In Denmark, where there is one cow to every $1\frac{5}{7}$ of the human population, phthisis was found to be very common, and with a high rate of mortality; while in Iceland, where there is only one cow to four individuals, the disease was extremely rare. And it is a fact that the only people on the face of the globe who enjoy an absolute immunity from phthisis are those who are not in possession of the domestic cow. Thus, among the Kirghises on the steppes of Russia, who consume large quantities of mare's milk, and eat the flesh of horses and sheep, but have no cows,

a case of phthisis, according to Dr. Naftel and other authorities, was never known. The Esquimaux also enjoyed the same immunity because they had domesticated the reindeer and not the cow.

In considering the statistics of Europe it would be found that the prevalence of phthisis is regulated by the ratio of the bovine to the human race; and he thought there could be little doubt that the in-bred species of the bovine race is the prime etiological factor of tuberculosis in the human race. They not only fostered the germ, and prevented its extinction, but sowed it in the human race continually and abundantly. Without their aid the germ would perish, for of all germs known, none had so hard a struggle for existence in man as the bacillus of tubercle; as was shown by the fact that of the immense number of individuals who are exposed to the infection, so comparatively few contract it.

The cow was the only known animal that had transmitted tuberculosis to her offspring in inheritance. After diligent search he had failed to find a single well-authenticated case on record of a human fœtus at term showing evidence of tuberculosis; but in 1885 Johne had placed on record an undoubted case of congenital tuberculosis in a fœtal calf of eight months.

In conclusion, Dr. Brush said man cannot generate new forms, but he can so control and interfere with Nature's processes as to modify the original design. In-bred cattle are selected, sheltered, and pampered, so that they would be unable to withstand the rigorous conditions of the wild state. They propagate earlier, are larger milkers, and are more efficient beef-producers, while their meat is more delicate and tender than that of the wild animal. All this is achieved by man at the expense of his own health.

DR. H. M. BIGGS very strongly dissented from these conclusions. He believed that the statistics given were not strictly true; but even if they were true, he did not think they would prove the correctness of the position taken by Dr. Brush, since they left out of consideration all the other factors concerned in the production of tuberculosis. He had left entirely out of account the influence of age, altitude, and occupation, which had been shown to be very important etiological factors. There was the strongest evidence that tuberculosis could be transmitted by milk; yet notwithstanding this it was certainly true that the disease was not often conveyed in this way. If this was the case, the disease ought to be much more common among young children, who live almost entirely upon milk, than among any other class of individuals; while, as a matter of fact, it was extremely rare among this class. The facts appeared to show that phthisis is most common among the most highly civilized nations, and among the native populations of uncivilized countries who are brought into more or less constant contact with foreigners from civilized countries.

In all civilized countries there were to be met with other elements (particularly that of occupation), which enter into the causation of the disease. Confinement in close, ill-ventilated apartments had a most pronounced effect upon males and females alike. More than this, Dr. Brush's theory was entirely inadequate to account for the marked prevalence of the disease among armies and the inmates of prisons.

Again, other things being equal, phthisis was found to prevail in proportion to the density of the population. According to the Brompton Hospital reports, 70 per cent. of the patients suffering from phthisis had been accustomed to spending their time in hot and dusty rooms. As regards the distribution of the disease among different classes, in every 1000 deaths, 168 of the patients were grocers, 108 tailors, and 301 drapers; while nearly 500 printers died of phthisis. He could not but regard the conclusions of the paper as unfortunate, especially if they should be accepted, since they would have the effect of diverting attention from the most important mode of origin of phthisis, viz., transmission from the human subject.

If the disease were derived from animals it could only be through the avenue of the alimentary canal, and it was a well-established fact that the number of cases in which the infection enters the system through the alimentary canal are exceedingly few. In the case of animals fed on tuberculous matter the resulting tuberculous disease, when such occurred, was found to be located in the alimentary canal, not in the lungs; and there was every reason to believe that the same would be true in the case of the human subject. It seemed to him ill-advised to look for the cause of the trouble in this unlikely source, when there were so many ready ways by which the human system might become infected with tuberculosis. One of the most prominent of these was undoubtedly the sputa of tuberculous patients. The sputa of all such individuals abounded in tubercle bacilli, and when it was remembered how large was the quantity of the expectoration of consumptives and for how long a time the disease often lasted, it could well be appreciated what a source of danger to others this constituted. The sputum was apt to be scattered all around, and on its becoming dry, the bacilli it contained often floated about with the dust in the air. The bacillus was the universally recognized special cause of tuberculosis, and it might thus be seen how readily it could be inhaled in this way, and so brought into direct contact with the lungs, which were the ordinary seat of the disease. We had no proof that the meat of tuberculous animals taken into the stomach was capable of producing tuberculosis of the lungs; and, moreover, it was a fact that the viscera and not the muscles of tuberculous animals were affected with tubercle. In tuberculous animals, furthermore, the milk was not infected with the bacillus unless the mammary glands were implicated in the tuberculous disease.

The sputum of tuberculous patients was, therefore, the chief agent by means of which the disease was spread; and, although he felt convinced that a much larger number of cases really originated from animals than was generally supposed, yet this class constituted but a small number of all the cases of phthisis.

DR. FORREST said that in the Southern States there were certain sections where phthisis was almost wholly unknown among the whites, but was very common among the blacks. Yet it was well known that far more fresh beef and milk was consumed by the white population than by the negroes, who lived principally on corn and pork. It was also a fact that a very fine stock of cattle was now raised in these same districts. He could not see how, therefore, that the condition of affairs which he had described could be reconciled with the theory of Dr. Brush.

THE PRESIDENT said it seemed to him that the posi-

tion taken by Dr. Brush was too narrow a one, and that any one who assumed that phthisis is due to one cause alone was begging the question. It was a disease that had many causes, and the bacillus which constituted its special etiological agent would not give rise to it unless it met with conditions which favored its development. Among the conditions to be taken into consideration were climate, hygienic surroundings, heredity, and soil, and a long list of causes must be in operation before the bacillus was able to do its specific work. This, he believed, was a point which should not be lost sight of.

Dr. Brush said that he thought that his position had been misunderstood. He did not wish to imply that the disease was derived alone from the cow. All that he claimed was, that wherever in-bred cattle existed, there was found phthisis also. He needed no proof to show that but a small proportion of individuals who were exposed to the infection contracted the disease, since, although the number of deaths from phthisis in every civilized community was appalling, it would be infinitely greater than it is if this were the case. He had frequently known of children drinking the milk taken from cows dying of tuberculosis, and yet there could be no question that the large proportion of them escaped infection. In addition to the bacillus, there must be present the conditions favorable to its development. But, at the same time, he believed that the disease was originally derived from the bovine species. He did not believe that less than fifty per cent. of all dairy cattle were affected with the disease, and the statistics which he had quoted showed that wherever there was a race of people without cattle phthisis was unknown. He believed, furthermore, that if all the cattle in this country were to be killed, the disease would finally die out entirely here.

He did not wish to rely on statistics except so far as they substantiated the main point that he made, that wherever cattle existed, there phthisis also existed.

The practical outcome of the whole matter, to which he wished to call special attention, was, that the prevalence of phthisis could undoubtedly be diminished by properly regulating the breeding of cattle by law, so that the in-breeding now so common might be done away with.

Section on Pædiatrics.

J. Lewis Smith, M.D., Chairman.

Stated Meeting, March 14, 1889.

Dr. H. W. Vineberg presented a case of

laryngismus stridulus and eclampsia associated with rachitis

in a male child, nine months old, of good family, and who had never suffered injury except once when it fell out of bed. Some time after this accident the child was attacked with laryngismus stridulus with severe convulsions, three or four attacks coming on each day. On examination the patient was found to be fat, flabby, anæmic without craniotabes or bone deformity. The temperature was normal; the urine was not examined. No improvement followed the administration of calomel, cod-liver oil, or ol. phosphoratum. After ten grains of potassium bromide were given twice daily the attacks ceased. At the present time the child is taking wine of iron.

Previous to 1843 laryngismus stridulus was supposed to have some connection with the thymus gland. Friedleben and others have pointed out its frequent association with rachitis. Reflex irritation from almost any part of the body may bring on an attack. The morbid anatomy of the subject has as yet not been cleared up. Attacks of asthma and stridulous croup are sometimes mistaken for true laryngismus. The prognosis is grave. The treatment should be directed to the attack and the interval between attacks. Warm baths, cold douches, tickling the fauces, the bromides, musk, apomorphia, and belladonna are recommended; also phosphorus and cod oil.

Dr. Jacobi remarked that the arytenoid (adductor) muscles are supplied by the recurrent laryngeal nerve; reflex irritation may be central or peripheral, as from the stomach, bronchial glands, mediastinal tumors, or enlarged thymus; the latter may cause sudden death by local pressure in children with a small sterno-vertebral diameter. Cranial rachitis is the usual central cause and prolonged apnœa may occasion sudden death.

Dr. Vineberg also presented as a case of

tetany,

a child fifteen months old, having but four teeth and suffering from diarrhœa; the feet, hands, and fingers were flexed through contracture of the muscles.

Dr. J. Lewis Smith remarked that the case was probably one of idiopathic contracture as described by Henoch in his treatise on children's diseases. He remembered having seen three such cases.

Dr. C. H. May read a paper on

scarlatinous otitis.

According to different authors, four to five per cent. of all aural affections are due to scarlatina. Burchard Marion reports that of 5613 deaf-mutes ten per cent. became so affected in consequence of scarlatina. The diagnosis in young children is difficult to make. As a rule, the little ones press the affected side into the pillow. Chills, convulsions, pain, restlessness, a stupid gaze are the usual symptoms; the glands are swollen. The purulent and diphtheritic variety present severe symptoms and a tendency to tissue necrosis. The prognosis is influenced by treatment and is usually good.

Treatment: An ice bag to the temporo-maxillary region, or hot fomentation, or tincture of iodine, or leeches are applied behind the ear. Injections of hot salt water and cocaine, ʒj ad. Oj, into the ear will control pain. In noticeable congestion and bulging of the membrana tympani paracentesis should be performed. To facilitate the discharge of pus the ear may be inflated by means of a catheter or Politzer's bag. A catheter should not be employed in children under four years of age. Dr. May thinks there can be no danger of forcing infectious matter into the middle ear. He does not advise packing the auditory canal with dry boric acid powder. Paracentesis should be made in the postero-inferior quadrant of the drum-head; and Wilde's incision over the mastoid process is often necessary. Pilocarpine has been recommended when the nervous

apparatus is involved, but no noteworthy results have been reported.

DR. SEXTON remarked that the inflammatory process shows two distinct varieties, it being confined either to the atrium of the ear or localized in the attic. When of the latter variety the pus may burrow upward and cause a fatal termination. In incising the membrane illumination should be obtained by electric light. Children should be etherized. Bloodletting, poulticing, douching should not be practised, as they give no relief. He preferred mild treatment and frequently administered aconite and gelseminum. Otitis media might arise from sympathetic irritation from the teeth.

DR. GRUENING remarked that in his opinion iodine applied externally could be of little value. He would not apply leeches in children who are weak from high fever of an infectious disease, on account of the danger of abstraction of blood; furthermore, he advises early incision, especially if the membrane is densely red. The ear can be illuminated by means of an ordinary light. A distinction between pus in the atrium or attic is superfluous. To remove pus from the ear he aspirates, because the use of the catheter or Politzer's bag is liable to force infectious material into the ear. In conclusion he stated that dentition has nothing to do with otitis.

DR. POMEROY spoke of the value of diminishing hyperæmia of the parts by means of leeches and aural douches of salt water in order to prevent the attack from becoming formidable. He also employs the hot water bag and opium. After puncture he uses the Politzer bag and no catheter in children. Packing the auditory canal is fruitless in acute cases but should be employed in chronic cases. Should a swelling present itself behind the ear he should cut down upon its apex into the soft bone.

DR. POOLEY objected to the term scarlatinous otitis, a special name being unnecessary. In the treatment the element of rest was very important. Local abstraction of blood he thought advisable. Hot water should be applied by means of a medicine dropper, and the ear kept clean by syringing. He believed the use of the catheter or bag to be injurious in acute cases.

DR. MAY closed the discussion by stating that Politzer's inflation was certainly indicated in retention of pus.

SECTION ON THEORY AND PRACTICE OF MEDICINE.

R. C. M. PAGE, M.D., IN THE CHAIR.

Stated Meeting, April 16, 1889.

DR. M. ALLEN STARR read a report on

SIMULO IN THE TREATMENT OF EPILEPSY.

In March, 1888, Dr. W. H. White, of London, published in the *Lancet* some observations on the use of simulo in the treatment of epilepsy. The drug was employed in the form of a tincture made from the kernel of the pit of the fruit of the simulo plant (capparis corriacea), which was given in one to two drachm doses three times a day. Having given a brief description of the simulo fruit, Dr. Starr stated that the tincture is of a yellowish-brown color and has an aromatic taste, reminding one slightly of sherry.

Dr. White reported seven cases of epilepsy treated by his agent, all of them being cases in which several fits occurred every week. In the first case neither simulo nor bromide was of any particular benefit. In the other cases there was considerable improvement under the use of simulo, and in case number seven, which was one of unilateral spasms with paresis, the spasm was very much relieved by the drug, although it had not been affected by larger doses of the bromides. He concluded his report by stating that he would not have it thought that simulo will cure epilepsy, but he believed that an improvement occurs under its use, and that it may be used as a substitute for the bromides when these produce ill effects.

In August, 1888, Eulenberg, of Berlin, published a report of seven cases treated by simulo, four of them being epileptic, and three hysterical in character. It appeared to have no effect whatever in the cases of hysteria, and in three of the cases of epilepsy its effect was found to be weaker and less certain than moderate doses of the bromides (90 to 120 grains daily). In the fourth case, in which the use of the bromides for years had not succeeding in reducing the number of attacks below four to eight in a week, the effect of maximum doses of simulo (six drachms daily), was to reduce the number of attacks to two to five in a week. Subsequently Eulenberg combined the bromides with simulo, giving a half dose of each, and the effect was at first as favorable as under the use of large doses of simulo alone. The frequency of the attacks gradually increased, however, and finally the patient was put back upon the bromides alone. Eulenburg's conclusion was that while simulo is not without use, it is decidedly inferior to the bromides in its effects.

Dr. Starr procured some tincture of simulo from the manufacturers, Christy & Co., of London, and in October last commenced its trial on a number of epileptic cases of extreme severity, which seemed to offer the conditions for a fair test of the powers of the drug.

Case 1 was a female, forty-eight years of age, who had had hysteria and epilepsy since the age of sixteen. The effect of the bromides was to reduce the attacks of petit mal, from which she suffered, from four to six daily to one or two daily, and also to reduce decidedly the frequency and severity of her attacks of grand mal, which without treatment occurred about once in two months. The use of bromide was attended with such bad effects, however, that it was found impossible to keep it up continuously, and as no other agent (with the exception of nitro-glycerine, which always had a favorable effect upon the petit mal attacks, but none on the grand mal attacks) had been found of service, the case was a very difficult one to manage. This patient was kept for two months on tincture of simulo; but, while for a time it prevented the occurrence of an attack of grand mal, it failed to arrest hysterical attacks or attacks of petit mal, and as the petit mal attacks increased under its use, it was then thought best to suspend the treatment.

Case 2 was a girl, twelve years old, who had had epilepsy ever since infancy, her attacks consisting of slight convulsions with loss of consciousness and loss of urine. The bromides had been used without any marked effect. Under the use of tincture of simulo, the dose of which was gradually increased from half a drachm to two drachms three times a day, the number of attacks became reduced from about five a week to

about three a week, while their severity diminished, and she no longer lost control of the bladder.

Case 3 was a girl of sixteen, who had suffered from epilepsy with both grand mal and petit mal attacks for two years. The simulo, in doses of two drachms three times a day, had no effect upon the petit mal attacks, but diminished the grand mal attacks from sixty-three attacks in a month (December, 1888, before the drug was commenced) to four attacks in a month (in February, 1889, the simulo having been commenced January 8th). During the month of February she had seventy-five attacks of petit mal. During the month of March, however (the simulo having been stopped February 26th), on bromide, chloral, and belladonna with nitroglycerine, she had no grand mal attacks and but eighteen petit mal attacks.

Case 4 was a girl of fifteen, who had attacks of grand mal since the age of twelve. The attacks occurred about every three weeks, in spite of bromide treatment. On February 9, 1889, she was placed on tincture of simulo, one drachm three times a day. On February 16th she had an attack, and on February 23d the dose was increased to two drachms. Up to April 16th no attacks had occurred; this being an interval of eight weeks, instead of the usual interval of three weeks.

Case 5.—John H., aged eighteen, had convulsions as a baby, but was free from them until the age of fifteen, when he had an attack of grand mal. Such attacks had recurred at shorter and shorter intervals, and when he applied for treatment, January 31, 1889, he had had one attack every month for several months. He was put upon tincture of simulo (six drachms daily), and reported on March 30th that he had no attacks since the treatment begun.

Case 6.—Max L., aged twelve, has had epilepsy ever since the age of two years; attacks of grand mal about once a month and attacks of petit mal several times a day. He was put upon tincture of simulo (six drachms daily) December 26th, and took it continuously until March 11th. During this time he had no attacks of grand mal, but the attacks of petit mal continued as before.

Case 7 was a young man of nineteen, who had had procursive epilepsy since the age of seven, the attacks consisting of a sudden pallor, followed by a flushing of the face and a sudden uncontrollable movement of the body. These attacks had never been controlled by bromides, and during the year 1888 they averaged one hundred every month. Tincture of simulo also had no effect upon them; but under the use of nitroglycerine combined with bromides they were reduced one-half. In addition, this patient had nocturnal convulsions, and the simulo was found to have a decided effect upon these attacks of grand mal, although the results obtained from it were inferior to those from the bromides. The case manifested many signs of abnormal cerebral development and showed tendencies toward paranoia.

The conclusions drawn from these cases by Dr. Starr were as follows:

1. Tincture of simulo has no effect upon attacks of hystero epilepsy or upon the hysterical state.

2. It has no effect in modifying the frequency or severity of attacks of petit mal or of procursive epilepsy.

3. It has some effect in modifying the frequency and severity of attacks of grand mal, but is inferior in this respect to the bromides.

4. In cases where for any reason it is deemed necessary to suspend the bromides, it would be well to substitute simulo for them.

There seemed to be no ill effects from the use of the drug. He found no evidence of change in the rate or character of the pulse or respiration or other physiological effects produced by the doses employed, and he thought it would be well to increase the dose progressively until one or even two ounces are used daily. The chief objection to its use at present is its costliness, the price being 25 cents an ounce. The suggestion of Eulenberg that it would be well to obtain and use the active principle of the drug, he thought worthy of consideration.

Dr. E. D. Fisher said that he had had no practical experience with the use of the drug, as its costliness was such that he had not felt justified in trying it in dispensary practice. His attention had been first directed to it by Dr. White's article in the *Lancet* in March, 1888, referred to in the paper. It would certainly be a great advantage, he thought, if we could get any agent which would at all take the place of the bromides in those cases of epilepsy where the use of the latter was attended with bad effects. The tincture of simulo, so far as employed, would seem at least to have no bad effects. Dr. Starr had expressed no opinion as to the mode of action of this drug, and he thought some information on this point was desirable, as nothing had as yet, so far as he knew, been published regarding it. On the whole, simulo seemed worthy of a further trial. In some of the cases reported it appeared to do well when given in connection with the bromides, and he would like to inquire if Dr. Starr had ever used it in this way.

Dr. Landon Carter Gray said that he could only agree with Dr. Starr as to the uselessness of simulo in epilepsy. He had tried it in several cases, (at least four or five), both alone and in combination, and had obtained from it no results except such as one could get in almost any case of epilepsy by changing the drugs employed. This was merely a temporary effect, and the same could be obtained by a hundred other agents. He had, therefore, discontinued the employment of simulo, as it had in his hands proved so nearly useless as not to afford sufficient encouragement to give it a more extended trial.

Dr. Starr said, in answer to Dr. Fisher's question, that he had not tried simulo in combination with the bromides.

CORRESPONDENCE.

ACUTE MELANCHOLIA AS A SEQUEL OF GYNECOLOGICAL OPERATIONS.

To the Editor of The Medical News,

Sir: Dr. T. Gaillard Thomas, in a paper read before the New York Academy of Medicine, April 4, 1889, entitled "Acute Mania and Melancholia as Sequelæ of Gynecological Operations," said: "There is very little literature extant upon this subject, which, until recently, has appeared to attract no attention. For obtaining what little there is I am indebted to two of my friends, Dr. Paul F. Mundé and Dr. Andrew J. McCosh, who have kindly looked it up for me. *Prior to the year 1887 there is nothing.*"

Mr. Lawson Tait, in a lecture delivered at the Jefferson Medical College Hospital, September 13, 1884, called "Abdominal Section in Disease of the Uterus or of the Uterine Appendages," and published in THE MEDICAL NEWS of September 27, 1884, spoke thus:

"Removal of the uterine appendages. . . . . After the operation. . . . . So far we have not had any trouble, except *from one thing, and this a distressing one*. It occurs after all sorts of abdominal operations, after exploratory incisions, after the removal of one ovary for cystoma, after the removal of both ovaries for cystoma, and after hysterectomy. I refer *to the occurrence of acute melancholia*. All the cases of mental alienation that I have seen following these operations are seven in number, and all have taken the direction of this most unfavorable form of insanity—acute melancholia. I cannot say that any one of them is likely to recover. I do not know that this is a necessary result in a certain number of cases. I have performed abdominal section some 960 times, and in this number I have met with 7 cases of acute melancholia. Of course, a good many of these cases died, especially in the earlier years of my practice. We may state that acute melancholia occurs in about one per cent. of those submitted to abdominal section. I do not know that anything like this follows other surgical operations. This is the only after-result of an objectionable character with which I am acquainted."

During the meeting of the New York Academy of Medicine, April 4, 1889, at which Dr. Thomas read the above-mentioned paper, Dr. Landon Carter Gray thought "that Dr. Thomas deserved the credit of having described *a new genus of insanity*, having related six cases and referred to twenty others."

Finally, Dr. Thomas expressed "the hope that other cases would be reported as they occurred, and that the subject would be investigated more thoroughly."

HENRY A. SHELLEY, M.D.

319 EAST ONE HUNDRED AND TWENTIETH STREET,
NEW YORK CITY.

AUTOMATIC AMBULATION.

To the Editor of THE MEDICAL NEWS,

SIR: Under the above title two cases of a rare form of epilepsy have been described. As Dr. Starr truly said, it was known before the case reported by Dr. Donaldson.

In Strümpell's second volume, page 429, in his article on epilepsy, he describes a form of psychical attack. This is given the name of "*Psychisch-epileptischen Aequivalente*." This is identical in character with the cases described by Dr. Starr and Dr. Donaldson. In Prof. Westphal's clinic, in January, 1888, the writer saw a patient suffering from this form of epilepsy. The attacks were, however, of short duration, rarely exceeding five minutes. But during that time the patient's acts were clearly those of a person with changed consciousness, for they had no relation to what she was doing immediately before the attack or to what she did immediately after the attack was over. She remembered nothing of what she did at these times of changed consciousness.

Very respectfully,

JAMES W. PUTNAM, M.D.

388 FRANKLIN ST., BUFFALO, April 19, 1889.

OBITUARY.

SAMUEL W. GROSS, M.D.

SAMUEL W. GROSS, M.D., LL.D., Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College, died on Tuesday, April 16th, at his home in Philadelphia, in the fifty-third year of his age. He was taken sick about the 25th of March, and typhoid pneumonia developed, marked by high temperatures and an almost constant delirium, from the effects of which he sank. He was attended in his last illness by Drs. Da Costa, Osler, Horwitz, and Wirgman, and was unremittingly watched and nursed.

Dr. Gross was the eldest son of the late Prof. Samuel D. Gross, and was born in Cincinnati, February 4, 1837. He was educated at Shelby College, Kentucky, began the study of medicine at the Medical Department of the University of Louisville, and continued it at the Jefferson Medical College of Philadelphia, in the session of 1856–57, and from which he was graduated in March, 1857. After a visit to Europe, he settled in Philadelphia and commenced the active practice of his profession, acting for a time as co-editor of the *North American Medico-Chirurgical Review*. When the war broke out in 1861, he at once entered the service of the United States. He was appointed Brigade Surgeon (U. S. Vols.) August 3, 1861, and was on duty with General Thomas's command, Army of the Ohio, and as Medical Director, Fifth Division Army of the Ohio, until July, 1862, and subsequently at De Camp General Hospital, David's Island, New York Harbor, until July 28, 1863; and at Draft Rendezvous, Riker's Island, New York, to August 26, 1863. He was then ordered to Hilton Head, South Carolina, and from September to November, 1863, was in charge of Field Hospital, and Surgeon-in-Chief at Morris Island, South Carolina. In January and February, 1864, he was Chief Medical Officer Northern District, Department of the South, and from March to May, 1864, was on duty as Medical Director District of Florida, at Jacksonville, Florida. In June, 1864, he was assigned to the Department of the Susquehanna, and was on duty at Haddington General Hospital, Philadelphia, Pa., until May, 1865. He was mustered out of service June 24, 1865. He was brevetted Lieutenant-Colonel, June 1, 1866, and his commission sent him June 15, 1866. In the discharge of his military duties Dr. Gross evinced remarkable efficiency and ability, and was greatly beloved by the officers with whom he was associated.

At the conclusion of the war he returned to Philadelphia, and again entering into practice, became surgeon to the Howard Hospital, the Philadelphia Hospital, and the Hospital of the Jefferson Medical College. He was also appointed Lecturer on Genito-Urinary Diseases in the summer course of the Jefferson Medical College, and in the spring of 1882, on the retirement of his father from the chair of surgery, the chair was divided, and Dr. Samuel W. Gross was appointed Professor of the Principles of Surgery and Clinical Surgery, and Dr. John H. Brinton, Professor of the Practice of Surgery, and Clinical Surgery. His chair of Principles Dr. Gross held until his death, his last clinical lecture being delivered only a few days before he was taken fatally ill. Several years before his death he received the degree of LL.D.

In 1876 Dr. Gross was married, and his wife survives him.

He was an active Fellow of the College of Physicians of Philadelphia, and served for years as a member of the Library Committee. At the death of his father, in 1884, he was elected President of the Board of Trustees of the Pennsylvania College of Dental Surgery. He also served as President of the Pathological Society of Philadelphia.

Dr. Gross's contributions to journalistic literature and to the proceedings of societies were many and various. In the *North American Medico-Chirurgical Review* for January, 1859, he published "A Case of Aneurism of the Right Femoral Artery cured by Digital Compression, with remarks, and a statistical report of twenty-two other cases treated by this method." In the *American Journal of the Medical Sciences* for 1869, he reported "A Case of Poisoning from Atropia;" in the same journal for January and April, 1867, he published an elaborate article on "Wounds of the Internal Jugular Vein, and their Treatment," strongly advocating the ligation of the vein. In the October number of the *Journal* for the same year, he wrote a most able review of sixty pages on eleven works on military surgery in English, French, and German. In this he entered extensively into gunshot injuries of the head and of the joints, and presented the statistics of 13,514 amputations for gunshot injuries, a number which he subsequently increased to 20,933 in the sixth edition of Gross's *Surgery*. For the April, 1871, number of the same journal, he wrote a valuable paper on "Ulceration of the Jugular Veins, communicating with an Abscess or Open Sore."

The study of tumors and of malignant disease was one which possessed peculiar fascination for him. In July and October, 1879, he published in the *American Journal of the Medical Sciences* a valuable paper based upon much original investigation on sarcoma of the long bones. This paper, as also his treatises on mammary tumors, in 1880, was in part the outcome of his Mütter lectures on Surgical Pathology, delivered before the College of Physicians of Philadelphia. In the *Transactions of the American Surgical Association* for 1881 and 1882, he published articles on carcinoma of the breast and on the resulting cicatrices after operation, and in the *Transactions* for 1883 he reported a case of nephrectomy for medullary sarcoma and partial cholecystectomy for calculus upon the same subject. In 1884, he read a paper before the Association on "Stricture of the Œsophagus, and the Operations for its Relief," and in 1887, one on the "Prognosis of Sarcomata of the Breast," in which his own results were largely embodied. In the March and April numbers of the *American Journal of the Medical Sciences* for 1888, he published a "Clinical Study of Carcinoma of the Breast and its Treatment." In this paper particular attention was given to metastatic deposits, and Dr. Gross described and pictured his own method of operating, and insisted upon the necessity of opening the axilla, and on the complete removal of all involved or suspected glands.

He also prepared for the second volume of the *American System of Gynecology*, edited by Dr. Mann, a voluminous article on "Tumors of the Breast," in which the doctrines he held and taught on the pathology, clinical characters, and treatment of these affections are vividly set forth.

In 1880, Dr. Gross published his *Treatise on Tumors of the Mammary Gland*, embracing their histology, pathology, diagnosis, and treatment. On tumors of the female breast, Dr. Gross has been recognized as an authority both at home and abroad. His accurate knowledge of the pathological anatomy of these affections guided him in his clinical treatment which undoubtedly was pre-eminently successful. In 1881, his *Practical Treatise on Impotence, Sterility, and Disorders of the Male Sexual Organs* appeared. Both of these works passed to second editions. He also at various times did much to assist his father in the preparation of the successive editions of Gross's *Surgery*. In 1876 he edited his father's treatise on *Diseases, Injuries, etc., of the Urinary Bladder*, and in 1887, in conjunction with his brother, A. Haller Gross, Esq., he edited the autobiography of his father.

As one of the staff of The Medical News he was a frequent and valued contributor to our pages, and his articles were always characterized by surgical acumen, breadth of view, fidelity to detail, learned research, clearness of expression and practical application.

From this summary of his lifework, it will be seen that his pen was never idle. He was always writing something, and as soon as one paper appeared, he busied himself in the preparation of another. He endeavored to have a contribution for each annual meeting of the American Surgical Association. He was not merely a reporter of cases; his aim was far higher; he sought in a true philosophical spirit, by the study of groups of cases and pathological conditions to arrive at the cause of disease, and to grasp the great principles of clinical treatment. His ultimate object was the cure of disease and the alleviation of human suffering. All studies were with him secondary to these ends, and to attain them, he labored continuously, wisely, and, we may say, successfully to a marked degree.

But the last labor of his life, and one of which he often spoke to the writer of this notice, with an energy and enthusiasm all his own, was a paper on "Stone in Children, and the Operations for its Relief," to appear in the forthcoming *Cyclopædia of the Diseases of Children*. To solve the question of the proper operation he had undertaken a thorough search through periodical literature for extensive data from which to deduce his conclusions, and to the same end he had written many letters, seeking the experiences of surgeons and hospitals at home and abroad. The arrival of each answer was warmly welcomed, and the information it gave recorded with delight. His unfinished notes and criticisms, his unused data, now rest on his office table, and it is a sad reflection that in the delirium of his fatal illness his mind constantly reverted to the cherished thoughts of his last working hours.

Dr. Gross took a deep and active interest in the medical societies with which he was connected, and especially in the American Surgical Association, which was founded by his father, whose profile is borne upon its seal. In his attendance at medical gatherings he was by no means a passive or silent member. He was a progressive man and, having greatly at heart the welfare of the profession and the advancement of medicine, his voice was often heard, and with no feeble or uncertain meaning. His utterances carried weight, not only because of the soundness of his views, but also from the

bold, honest, and straightforward manner in which he advocated them.

He was a learned surgeon, deeply versed not only in the medical literature of his own language, but also in that of Germany and France. He was a constant reader of periodicals, reports, and transactions of societies. His memory was retentive, and the precise information thus stored up, was always at his instant command. His professional judgment was unusually correct, and his surgical treatment was based on an accurate knowledge of the pathological anatomy of diseased or injured parts.

As an operator he was bold and self-reliant. He was systematic in the highest degree. Every step in the operation was thoughtfully planned, and boldly, judiciously, and promptly carried out. He was fertile of resource, undaunted, and well able to meet and deal with the contingencies of operative surgery. He was a thorough and careful operator, seeing to the final steps and dressing of an operation with an unremitting attention. His operations were well done to the end.

As a lecturer Dr. Gross was eloquent, earnest, and enthusiastic. He was loved and respected by his class, who fully appreciated his rare power of imparting knowledge and his unflagging efforts for their instruction. He was indeed a model teacher. His style was clear, logical, and terse. He taught in an eminent degree principles; and seeing clearly, he sought to make others see. He succeeded, and his lectures, didactic and clinical, were thronged with listeners of maturer years, who came to profit by his lessons.

In manner he was energetic and quick. In thought and discussion he at once went to the gist of a matter, and impressed all as a man of force and decided character. He was warm-hearted and hospitable, and to the young and struggling physician he was more than a friend, ever ready to lend a helping hand, and often rendering benefactions in secrecy and silence. To those who stood near to him and knew him best, he was most kind and gentle, a faithful friend, loyal in times of trouble, tender, and true. In life he was loved and honored; the void he leaves will be not easily filled, and his memory, entwined with that of his father and predecessor, will long endure.

NEWS ITEMS.

In Memoriam.—At a meeting of the Philadelphia County Medical Society, held April 17th, a minute was adopted expressive of regret for the death of Dr. Bruen and esteem for his services. We make the following extracts:

"Dr. Edward Tunis Bruen, late Vice-President of this Society, has been removed from our midst by the relentless hand of death. Never physically strong, especially since receiving his degree in medicine in 1873, he rapidly succumbed to an attack of double croupous pneumonia, which proved fatal Sunday, March 31st, less than a week from its incipiency. Despite his apparent lack of strength he exhibited a remarkable endurance, and accomplished a vast amount of work in varied lines, as teacher, writer, and practitioner. As a student he seemed indefatigable, as evidenced by his familiarity with medical literature, as well as by his services on the staffs of so many hospitals.

"His writings were extensive, not only for the many societies of which he was a member, but also of original articles for the medical journals, and for comprehensive systems of medicine. He was also a popular private preceptor, and had numbers of students constantly under his direction.

"Personally Dr. Bruen was a delightful companion, whose native refinement and rare geniality made him prominent in every gathering which he graced, and made him always welcome to a very large circle of professional friends.

"This Society has lost through his death an active, interested, and highly valued member, in the prime of his usefulness; and many of us feel the loss of a loved and never-to-be-forgotten friend."

AT a meeting of the German Medical Society of Philadelphia, held April 8, 1889, the following minute was adopted:

"The German Medical Society of Philadelphia records with profound sorrow the loss of its honored member, Dr. Edward T. Bruen, whose wide and growing fame as a scientist, as well as whose rare personal qualities, have won for him high honors and the affectionate regard of all who knew him."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 16 TO APRIL 22, 1889.

SMITH, A. K., *Lieutenant Colonel and Surgeon.*—Reports the address of the New Army Building as at No. 39 Whitehall Street, New York City, April 18, 1889.

WILLIAMS, JOHN W., *Major and Surgeon.*—Died at Jackson Barracks, Louisiana, April 15, at 5.06 P.M.

HAPPENSETT, JOHN C. G., *Major and Surgeon.*—Is relieved from duty at Willett's Point, New York, and ordered to report to the commanding officer Atlanta Barracks, Georgia, for duty as Post Surgeon at that post.—Par. 12, *S. O. 88, A. G. O.*, April 16, 1889.

EWEN, CLARENCE, *Major and Surgeon.*—Promoted Surgeon U. S. Army, with the rank of Major, to take effect April 15, 1889.

Pursuant to instructions received from the Adjutant-General's Office, Washington, April 13th, the following-named medical officers will assemble with troops in New York Harbor, on the 27th instant, prepared for field service in connection with the New York Centennial parade: ROBERT H. WHITE, *Major and Surgeon;* CLARENCE EWEN, *Major and Surgeon;* JOHN J. COCHRAN, *Captain and Assistant Surgeon;* and CHARLES B. EWING, *First Lieutenant and Assistant Surgeon*—*S. O. 90, Headquarters Division of the Atlantic, Governor's Island, New York City*, April 19, 1889.

WOODRUFF, CHARLES E., *First Lieutenant and Assistant Surgeon.*—Is relieved from duty at Fort Mackinac, Michigan, and ordered to Fort Gaston, California, for duty.—Par. 14, *S. O. 86, A. G. O.*, April 13, 1889.

MCKEE, JAMES C., *Lieutenant-Colonel.*—Leave of absence granted in S. O. 44, A. G. O., February 21, 1889, is extended seven days.—Par. 11, *S. O. 86, A. G. O.*, April 13, 1889.

POLHEMUS, ADRIAN S., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Gaston, California, and ordered to Fort Monroe, Virginia, for duty.—Par. 14, *S. O. 86, A. G. O.*, April 13, 1889.

APPEL, AARON H., *Captain and Assistant Surgeon.*—Is granted leave of absence for twenty-one days.—Par. 1, *S. O. 38, Headquarters Division of the Missouri*, April 16, 1889.

Under authority from the Secretary of War, conveyed by letter of the 16th ultimo, from Division Headquarters, the post of Fort Sisseton, Dakota, will be discontinued from June 1, 1889.—*S. O. 35, Headquarters Department of Dakota, St. Paul, Minnesota*, April 8, 1889.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

BRIGHT'S DISEASE AND ITS TREATMENT.

A Clinical Lecture delivered at the Philadelphia Hospital.

BY FREDERICK P. HENRY, M.D.,

PHYSICIAN TO THE PHILADELPHIA AND JEFFERSON COLLEGE HOSPITALS.

GENTLEMEN: I introduce this patient because her case is a typical one of that class of diseases to which the name of Bright is universally applied. I do not propose to discuss the question whether the widely varying appearances of the kidneys of this group of diseases represent different stages of one process or independent processes from the beginning, but intend to devote a portion of the time at my disposal to the consideration of certain symptoms common to them all, and all dependent upon the imperfect excretion of urine.

Until quite recently it has been supposed that the most poisonous ingredient of the urine is the urea, and, consequently, that the grave nervous disturbances following the diminution or suppression of the urinary excretion were due to the accumulation of urea in the blood. The term uræmia was introduced to express this view of the pathogeny of kidney diseases and was universally adopted. It is now known to be a misnomer, but it is not the only medical term that has lost its etymological significance, and will doubtless continue to be employed to indicate an assemblage of symptoms dependent upon the imperfect excretion of urine.

The adjective "uræmic" is commonly applied to a group of symptoms of the gravest character calling for the promptest application of the most powerful remedies. Of these symptoms the most prominent are coma, convulsions, and delirium. I am not prepared to advocate the abandonment of the term uræmia and its cognate adjective, although, as you will presently see, the term "urinæmia" suggested by Bouchard is much more accurate, but I would call attention to the fact, often overlooked, that it is equally applicable to a group of less conspicuous symptoms which are often the precursors of those to which I have just alluded. These slighter manifestations of uræmia are of the greatest practical importance, inasmuch as they indicate a degree of poisoning which is overcome with comparative ease.

I will mention some of these precursory symptoms to which attention should always be given by those in charge of cases of Bright's disease. One of the most striking of them is a frequent desire to micturate. This symptom has been called by Dieulafoy, of Paris, *Pollakiuria*, which is a very different thing from polyuria. In the latter the amount of the twenty-four hours' urine is increased; in the former it is not. Pollakiuria signifies that a normal or subnormal amount of urine requires for its expulsion an abnormal number of contractions of the bladder. This is often one of the earliest symptoms of Bright's disease, but sometimes it does not make its appearance until a late stage and is then one of the precursors of more marked symptoms of systemic poisoning. It is due to an irritation of the bladder by a urine of abnormal composition. Many years ago it was recommended by most writers upon the subject of gonorrhœa, and perhaps is still by some, that, in that disease, the urine should be diluted by the copious ingestion of water so as to lessen its specific gravity and render it less irritating to the inflamed parts. The theory on which this treatment is based is now known to be false, for the urine that is least irritating to the genito-urinary tract is one of which the specific gravity approaches that of the blood serum. A urine of low specific gravity irritates the bladder, and this lessened density is undoubtedly one of the causes of the pollakiuria of Bright's disease.

Other symptoms of uræmic poisoning of minor grade are noises in the ears, itching of various parts of the skin, urticaria and other skin eruptions, and vasomotor disturbances, usually in the direction of vascular spasm. This may have its seat in the pulmonary vessels and give rise to great dyspnœa, closely resembling that of a typical attack of asthma, or it may manifest itself in the external parts, especially in the upper extremity. The hand, in such attacks, may become as pale and as cold as that of a corpse. This condition of "local asphyxia" which, by the way, is not peculiar to Bright's disease, was first described by Raynaud, and is, therefore, known as Raynaud's disease. It would be more correct to call it Raynaud's symptom, as its pathogeny is various. Finally, the symptom which probably most surely indicates an approaching outbreak of violent uræmic phenomena, is *myosis* — contraction of the pupils. It is one of the earliest symptoms of experimental uræmia, making its appearance when from ten to fifteen cubic centimetres of urine have been injected into the veins of a rabbit.

When, therefore, a patient with Bright's disease complains of noises in the ears, of itching of the skin, of frequent desire to urinate while the urine is not increased in quantity and free from mucus and pus, you should regard him not as liable to become affected with, but as already the subject of, uræmia. If, in addition, you observe that the pupils are abnormally contracted, you should employ active measures to prevent the outbreak of more violent and dangerous symptoms of poisoning.

I have criticised the term uræmia on the ground that urea is not the most poisonous ingredient of the urine. This is a weak statement of the fact, for instead of being the most, it is the least toxic of all the urinary constituents. The following simple experiment proves that there are substances in urine much more poisonous than urea: Ten grammes of urea were injected beneath the skin of a guinea-pig, causing the death of the animal in two hours and seventeen minutes. Beneath the skin of a second animal were injected one hundred and twenty-eight cubic centimetres of urine containing the same amount of urea. This animal died in twenty-one minutes.

The amount of urea present in the blood in cases of Bright's disease is not believed, by those who have studied the question experimentally, to be sufficient to give rise to any poisonous symptoms. Urea is a powerful diuretic and its accumulation in the blood tends to increase the secretion of urine, so that, paradoxical as it may seem, the less urea there is in the blood, the greater is the danger of becoming uræmic. In fact, Professor Bouchard, of Paris, taking advantage of its well-known diuretic properties, has actually treated a case of uræmia with hypodermatic injections of urea.

The complex of symptoms known as uræmic is the result of poisoning not by one but by numerous substances. Leaving urea out of the question, the urine, according to Bouchard, contains six distinct poisons: 1. A narcotic, concerning which nothing further is known than that it is organic and soluble in alcohol. 2. An organic substance which possesses a strong sialogogue action. 3 and 4. Two convulsives, one of which is organic and the other mineral. 5. A poison which contracts the pupil, and 6. A poison which lowers the temperature.

When urine is injected into the veins of an animal convulsions do not occur because the narcotic poison kills it before the convulsives have time to act. These poisons have not all been isolated, but there is no question that the mineral convulsive is potassium and that the coloring matters are decidedly toxic. The former statement is proved directly by the injection of potassium, and the latter indirectly by the fact that urine decolorized with animal charcoal is much less toxic than urine that has not been so treated.

Certain alkaloidal substances known as leucomaines are found in minute quantity in normal urine and have been supposed to be the cause of the symptoms known as uræmic. They are formed in the intestine through the agency of the microörganisms contained in that part of the digestive tract. They are excreted, in part, by the bowels. Another part is retained and destroyed in the liver, while the remainder passes that organ, enters the general circulation and is excreted by the kidneys. That these substances are highly toxic there can be no doubt, and in diseases of the intestinal canal, especially in enteric fever, they probably give rise to the symptoms of adynamia known as typhoid, but experiments tend to prove that, as a rule, their part in the production of uræmic symptoms is not a prominent one. For example, the symptoms of poisoning caused by double nephrectomy ensue too rapidly to be explained by the accumulation of these alkaloids.

I could mention further facts in proof of the statement that the process of uræmic poisoning is a very complex one, but those I have given you should be enough, if not to convince, at least to induce you to study this important subject for yourselves.

I will, therefore, devote the remainder of the hour to some general suggestions concerning the treatment of Bright's disease.

In the first place, you should dismiss from your minds any idea of suppressing, or even diminishing, the albuminuria by drugs administered with the object of constringing the renal vessels, or of so modifying the albumin as to make its filtration through the glomerular vessels difficult or impossible. Such effects have been ascribed to tannic and nitric acids, but they have been weighed in the balance and found wanting. The treatment of Bright's disease must, therefore, for the most part, be dietetic and hygienic.

Before mentioning any particular articles of diet that exercise an injurious effect in Bright's disease, it should be stated that in the urine of a certain proportion of perfectly healthy persons after a hearty meal—*i. e.*, a meal containing an abundance of nitrogen, albumin may be found. It would appear, therefore, on *à priori* grounds, that albuminous substances should be administered sparingly, and clinical experience brings ample testimony in support of this inference. It may be laid down as a rule that eggs are to be discarded from the diet. Experiments on animals have proved that the quantity of albumin excreted with the urine is much greater than the amount of this substance injected into the veins—in one instance four times as much—and that the albuminuria thus excited is more or less persistent. It would seem that egg albumin to certain animals and to certain constitutions is a decided irritant to the kidneys. The same is true to some extent of meat, which should be administered sparingly, and preference given to white meats and fish, which contain less albumin than beef and mutton. Another objection to the use of albuminous substances is that they increase the quantity of urea in the blood, and whatever views may be held with reference to the production of so-called "uræmia," there is no doubt that the presence of urea in an albuminous solution increases the filtration of the albumin.

Cheese is another substance to be avoided. Fifty years ago (in 1839) Christison observed temporary albuminuria in persons who had eaten heartily of this substance.

It is sometimes argued that as albumin passes out of the system in large amount, this loss should be atoned for by the free ingestion of albuminous substances, but such an argument proceeds from ignorance of the facts of the case. In albuminuria of high degree the loss of albumin, when carefully estimated, is found to be remarkably small. It rarely amounts to more than a few tenths of one per cent., and it has been calculated by Senator that half a pound of meat contains enough albumin to cover the weekly loss of this substance in high degrees of albuminuria.

As regards fluids, alcoholic drinks should be entirely avoided, but when patients insist that they cannot do without such beverages, which is equivalent to saying that they will not, they may be advised, out of a variety of evils, to choose the least, which is claret. Its percentage of alcohol is small, and it contains tannin, which is still regarded by some as of medicinal value. Beers are considered more injurious than wines. The composition of wines is involved in some obscurity, but they certainly do not contain the salicylic acid and cocculus indicus which have been found in some beers.

Having mentioned some of the substances to be avoided in the diet of those afflicted with Bright's disease, it remains to be stated what things may be consumed, not only with impunity but with benefit. The main reliance should be upon milk. An exclusive milk diet is often talked about but seldom lived up to. The bulk of this liquid, which must be taken to supply the barest needs of the system, is so great as to overtax the average healthy stomach, to say nothing of the irritable stomach of Bright's disease. According to Voit, a

healthy adult prisoner, while idle, requires 85 grammes of albumin, 30 grammes of fat, and 300 grammes of hydrocarbons per diem, while two litres (about 3½ pints) of milk contain only from 68 to 70 grammes of albumin. The fat in this amount of milk will be twice as much as is necessary, and the hydrocarbons about one-third the necessary amount. If the digestion is good the milk may be given unskimmed, as the fat may supply the deficiency in hydrocarbons, but if, as is generally the case, it is bad, the milk must be skimmed and the deficit in hydrocarbons made up by the addition of bread, oat meal, corn meal, hominy, or rice. On such a diet the nutrition may be well maintained, especially if the patient does not take much exercise, and here let me insist on the important fact that a patient with Bright's disease should take little or no active exercise, for muscular activity by increasing arterial tension is always injurious. Passive exercise in the form of massage is all that should be indulged in. The functions of the skin may be maintained by occasional warm baths followed by vigorous friction, during which great care must be observed to avoid taking cold. The underclothing should be of wool the year round.

The question of the climatic treatment of Bright's disease has not received the attention it deserves. Above all things the climate recommended should be dry. A warm is to be preferred to a cold climate, but a cold dry climate is better than one that is warm and moist. It is probable that the early detection of Bright's disease and the removal of the patient to a suitable climate will be followed by at least as good results as have attended similar procedures in cases of phthisis. Pye-Smith mentions the case of a young man who was anæmic and œdematous, with casts in his urine and increased vascular tension, who was completely cured by a residence of one winter in Egypt, the only additional treatment being flannel, diet, and chalybeates.

The drugs employed in the treatment of chronic Bright's disease are administered with the view of mitigating the severity of the secondary symptoms. Of these, the one universally present is anæmia, which may be so great as to cause serious difficulty in determining whether or not it is primary. For example, Fagge mentions a case of contracted kidney which was "set down," presumably by himself, as one of pernicious anæmia. The difficulty is enhanced by the fact that in high degrees of anæmia, owing to diminished blood pressure and malnutrition of the renal epithelium, a slight degree of albuminuria is frequently present. As to the degree of the anæmia of Bright's disease, that, of course, depends to a great extent upon the stage it has reached, although the anæmia in an early stage of cases that have been neglected may be greater than that of a later stage of cases which have received proper treatment. Chalybeates are, therefore, indicated from the start, a fact which was empirically ascertained long before the introduction of clinical examinations of the blood. There is no better preparation of iron in Bright's disease than the tincture of the chloride. Basham's mixture, which, besides this tincture, contains acetic acid and liquor ammoniæ acetatis, is an excellent preparation. The last-named drug is of value on account of its diaphoretic properties, and its administration has been a matter of routine at Guy's Hospital since the time of Addison.

Another diaphoretic has hardly fulfilled the expectations that were formed regarding it on its first introduction. I refer to jaborandi, and its alkaloid, pilocarpine. It is depressing in its action on the entire system, and is sure to interfere with the digestive functions. It should, therefore, be held in reserve for cases of rapidly progressing œdema, and then administered with care. It is best given hypodermatically, beginning with one-sixth of a grain of the nitrate of pilocarpine; next best by the mouth, in the form of the fluid extract. The infusion is very nauseating, and has not been prescribed by me for several years.

Purgatives are of great value in Bright's disease, and should be administered twice a week, even when the bowels are regular. The best cathartics are the salines, and of the salines there is none better than a mixture of magnesium sulphate and potassium bitartrate. A drachm of the former and half a drachm of the latter in lemon syrup and water is not unpalatable, and may be given every hour until several doses have been taken, or one single larger dose of the two may be given early in the morning in a glass of hot water. It is doubtful whether the saline and alkaline-saline waters so much employed in Germany in the treatment of Bright's disease possess any medicinal influence apart from their laxative properties. Mercurials should not be employed in the treatment of Bright's disease, as they are apt to induce salivation, and are besides contraindicated by the anæmia which is always present.

Another drug to be avoided, especially in that form of the disease associated with contracted kidney, is opium. Comparatively small doses of opium have caused narcotic poisoning in several instances. Intercurrent attacks of pain may, however, necessitate the use of this drug, but if morphia be used hypodermatically, it should always be combined with atropia. In acute Bright's disease this intolerance of opium is said not to exist, but it is hard to draw the line between acute and chronic. For instance, you may be called to attend a patient with an attack of acute Bright's disease, and this very attack may be engrafted upon a chronic process of which both yourself and the patient may be entirely ignorant.

The dyspnœa, which is often an alarming symptom of Bright's disease, is best combated with nitrite of amyl and nitroglycerine. The effect of the former is transient, that of the latter much more permanent. Great œdema of lower limbs and scrotum may be relieved by needle punctures, from which there will be a constant oozing of serum. These punctures may, however, be the starting-point of erysipelas or gangrene in late stages of the disease, and such complications are rapidly fatal.

The treatment of uræmic convulsions or coma, to be successful, must be vigorous. In case of violent clonic convulsions, venesection should be promptly resorted to, from ten to twenty ounces being abstracted from a vein. In case of coma a drastic or hydragogue purgative, such as elaterium or croton oil, should be administered, and of the two I prefer the latter. Two drops of croton oil in a little mucilage may rescue the patient from an apparently hopeless condition. The cardiac complications present the same indications as those of primary heart disease.

With the aid of the various measures above enumerated, life may often be prolonged for an indefinite period. Albumin and casts may be present for years in the urine of persons who present an appearance of robust health;

but it is scarcely necessary to say that such people have made a study of living under difficulties, and are aware that the slightest indiscretion may prove fatal.

ORIGINAL ARTICLES.

THE COTTAGE PLAN OF TREATING CONSUMPTION IN COLORADO.[1]

BY SAMUEL A. FISK, A.M., M.D.,
OF DENVER, COLORADO;
PRESIDENT OF THE COLORADO STATE MEDICAL SOCIETY; PROFESSOR IN THE UNIVERSITY OF DENVER.

IT is well, I think, to recall every once in a while the fact of the prevalence of phthisis. In a general way it is recognized that it is a dread disease, the cause of many deaths, and, until recently, it has been considered incurable. One is almost appalled, however, when he comes to investigate the facts. It seems nearly incomprehensible that about 100,000 lives are lost annually in the United States alone through this fell complaint, and that in general it is the direct cause of twelve per cent. of all mortality, and that in many cities this percentage runs up to even twenty per centum of all deaths.

Since the days when smallpox created such frightful ravages, which happily are now done away with by proper sanitary measures and by the introduction of vaccination, pulmonary consumption has become the dread foe of mankind, the insatiate minotaur of disease.

The accustomed, the every-day event, is apt to attract but little attention. It is the unaccustomed that is noticed. So when Spain loses 100,000 of her population by an epidemic of cholera, the world is struck dumb with fear and sorrow. The annual loss of an equal number of lives in our own country, by a disease more insidious and quite as fatal, passes without comment.

The reason for this may be that we feel ourselves, in a measure, helpless. We know not which way to turn to prevent. The introduction of the germ theory and the demonstration of the bacillus has not aided us much. Deep inhalations, the pneumatic cabinet, deep injections, creasote, iodine, carbolic acid, inflation with hydrogen sulphide, and all other means of treatment have not been of much avail. They have not sensibly diminished the death-rate.

To-day the best accepted plan of treatment is the climatic, the application of atmospheric and telluric influences to this diseased condition.

Undoubtedly different manifestations of the disease require different kinds of climate. It would not be proper, for instance, to subject an advanced case of laryngeal phthisis to the rigorous climates that many cases of incipient phthisis can stand, nor to place an enfeebled person, with bad digestion and poor powers of reaction, where his system would be still further enfeebled rather than built up.

Dr. Knight, of Boston, in an able paper read before the Society for Medical Observation a year ago, has very ably summarized the ideas of the profession, or perhaps I should say those ideas most generally held, with reference to the selection of a climate for patients with pulmonary tuberculosis, and, inasmuch as they are the opinions held by Hermann Weber, Lindsay, and others, I will venture to state them briefly.

The first object to be attained, he writes, is an out-of-door life in a pure air, the chief good coming through the general improvement in nutrition, and this reaches its maximum benefit when the patient can lead an active out-of-door life at considerable elevation (4,000 to 8,000 feet above the sea-level). He then proceeds to say that "There seems little doubt that in suitable cases the improvement in nutritive activity is much more marked in mountainous regions than on the plains," the reasons being (1) rarefied air; (2) dry and pure air; (3) the large number of clear days when the invalid can be out of doors.

In the main, the cases that can expect a benefit from the climates of high elevations are the incipient cases, those cases more advanced, but without excavations and not having any serious constitutional disturbance; the hemorrhagic, fibroid conditions, when the patient is young and the heart not enlarged, and those recovering from pleurisy or pneumonia, in whom the irruption of tubercle is feared. With reference to high altitudes he remarks: "The region which I have found best for this kind of treatment is the eastern slope of the Rocky Mountains, in the States of Colorado and New Mexico, where the altitude ranges from 4,000 to 8,000 feet."

Such, then, is the opinion of one of the recognized leaders in this particular branch of medicine in this country, an opinion which is meeting with constantly increasing acceptance. Across the water the same ideas exist with reference to high-altitude cures, and they find expression in a recent utterance of Sir Andrew Clark: "I am as sure as I can be about anything at present, incapable of actual demonstration, that the recoveries from phthisis judiciously treated at high altitudes, are much more numerous and much more lasting than those treated by any other method at any other place."

I trust that the Society will pardon me this introduction to what I wish to present as the main idea for the discussion this evening. I have made it because I wish to emphasize the fact that we have in our climate those conditions which experience has shown, and which the profession are learning to recognize, conduce to more numerous and more lasting cures from phthisis than those treated by any other method. We have conditions favorable for out-of-

[1] Read before the Denver Medical Association, etc., March 7, 1889.

door life in an elevated region. We have the dry and pure air, and a percentage of sunshine that is almost unrivalled. We can point with pride to a close analysis of our meteorological data, and square them by the crucial tests proposed by Franklin, Weber, Tucker Wise, and others for the desirable climatic elements in the treatment of phthisis, and find them in no whit wanting. There are those among us who have spent no little time and effort in calling the attention of the profession, and of the public, too, to these climatic conditions, and to their efficacy in the arrest and cure of pulmonary disease. But we must not rest here; we should learn to take advantage of all that modern investigation has proved to be of avail in the proper treatment of phthisis and superimpose it upon the benefits to be derived from our climate.

"The author will have written to little purpose," says Dr. Lindsay, "if he has not shown that climate *per se* is not the exclusive agent in the case, and that to rely upon it alone, to the exclusion of its indirect influence upon life and habit, is to invite failure."

"Wherever the patient goes he should, if possible," writes Dr. Knight, "consult some good physician of the region, who will lay out a plan of life. Many patients make themselves sick, and even destroy their chances of recovery, by neglecting to consult a local authority for this purpose."

"I have already allûded to the circumstance," are the words of Dr. Hermann Weber, "that intelligence on the part of the patient and his friends is a great help toward recovery in phthisis, and that want of judgment into the nature of the illness, and of the manifold dangers, and into the means of cure, renders the prognosis less hopeful, unless we are able to place the patient under the strictest superintendence of a judicious doctor, etc."

I have introduced these quotations because they voice what has probably been the experience of every one here, that people coming here and attempting to look after themselves, without medical advice, do not, as a rule, reap the best that is to be gained from our climate; and that very generally they make some grievous mistake which costs them so severely in point of health that they die, or go away disgusted saying that the climate is not what it is cracked up to be.

A climate, like any therapeutic measure, has to be used discreetly to obtain the best that can be gained from it, and this can be attained in the best way from consulting those who have had experience in it. Not only does it require a knowledge of the climate to treat a phthisical patient properly, but the practitioner, to be well equipped, should have had an experience in handling such cases, so as to know how to give directions into the minutest details of the regulation of the patient's life.

I know of no disease that requires such careful handling as that of phthisis. The treatment is somewhat concerned with the administration of drugs, but only to a slight extent in comparison with the attention that has to be given to the regulation of diet, exercise, clothing, the proper attention to all functions, the ventilation of the rooms, the regulation of the hours of sleep—in fact, the regulating of the invalid's life.

Many think that such details can only be carried out by putting the patient under the very closest surveillance, and for this purpose sanatoria have been erected at which phthisical patients are gathered, and in which their lives are regulated to a nicety, the whole institution being run on a system with almost clock-like precision. The two most noted of these sanatoria are those of Dr. Hermann Brehmer, at Gôrbesdorf (elevation 1740 feet), and of Dr. Dettweiler, at Falkenstein (elevation 1500 feet).

The attention of the profession in America has recently been called to the two systems by two excellent articles from the pen of my friend, Dr. Kretzschmar, of Brooklyn, and they have, further, the endorsement of Dr. Hermann Weber, to the effect that "the results obtained at this establishment show how much can be done in phthisis by carefully arranged hygienic management, even with imperfect climatic elements."

It is worth our while to inquire whether some such system might not be introduced with advantage in our treatment of this disease, rather than to keep on pursuing the plan now in vogue—which, in contradistinction, I have called the cottage plan—which allows the invalid to be his own master, to live, always subject to direction, of course, but without surveillance, in a boarding-house, hotel, or at his own home.

I know that this plan has many disadvantages, and yet I am a strong believer in it. I know that in the matter of exercise, for instance, which should be regulated with great care, in accordance with the demands of the individual case, it is not always possible to get your patient to carry out instructions unless he be carefully watched. I have seen more harm done by over-exercise than by too little exercise. I can recall a case in which recovery was sacrificed to a fishing excursion of only a few hours' duration. I have in mind another case in which irreparable harm was done by too long a ride on horseback. I think a life in my practice was sacrificed by pitching quoits and swinging Indian-clubs after a fatiguing journey. I have seen imprudence in regard to tiring one's self in talking, singing, and keeping late hours, produce severe hemorrhages. I need not multiply examples; they will recur to each one of you. To be sure these results might have been avoided in a sanatorium where the patient would have been under guard; but such cases, after all, are few in comparison with the total of cases under treatment. The majority of patients will use due care, if the importance of the subject be presented to them, and it is possible, if such measures be necessary, to have the watch established and

conducted by the friends and family rather than by hirelings.

I will acknowledge, too, that it is of the utmost importance that the invalid should have the proper amount of out-of-door life, here again regulated to the demands of the particular case. If he be weak, it should be obtained by sitting or resting in the open air; if he be stronger, by moderate walking and driving; and, where he is able, by a life in the saddle.

But we in Colorado have not found it necessary to build sanatoria to carry out these ideas, and our results can attest our successes.

It is of the utmost importance that the strictest attention should be paid to the diet of the invalid. Undoubtedly this can be regulated to a fine point in a sanatorium. It may be necessary to cater to a capricious and whimsical appetite, or to have the food supplied frequently and in small amounts, all of which can be carried out in a sanatorium, as is done in the two I have mentioned.

But when this becomes absolutely necessary it can be done in one's home quite as well as in a sanatorium, and that is the plan followed in Colorado.

It is not necessary to go into all the details of the regulation of an invalid's life, which can undoubtedly be carried out to their fullest extent at some well-conducted institution. There are these very decided objections in my mind to such methods.

I think that it should never be lost sight of that the phthisical invalid is a human being, usually of mature years, who values his independence, who chafes under discipline of any sort, and who hates and detests being schooled again, or being huddled with other invalids like a flock of sheep.

It seems to me that enough attention has not been paid to the treatment of the mental states of phthisical patients. The *spes phthisica* has become proverbial, and it is spoken of off-hand as though, given a phthisical case, he must necessarily be hopeful, and therefore cheerful, a condition that he can no more help, and for which he is no more responsible, than a good Knox Presbyterian is for the sins that he was foreordained to commit.

This is by no means the case. He may be deceived as regards the seriousness of his condition, but he is by no means free from depression. He is rather fond of dwelling on his symptoms, of comparing notes with his fellow invalid. He watches too closely, if he be permitted to do so, his appetite, his digestion, the hours of sleep, his temperature, the amount of cough, and character and quantity of his expectoration.

He is easily depressed by a slight variation from the normal in any of these conditions, and is made very apprehensive by any ill that befalls another invalid, lest the like may soon come upon him. A death casts a gloom over the whole community, and produces a mental depression in a colony of invalids that has a serious effect upon their well-being.

Because of this infectiousness, because of their too great susceptibility to the blues, because grit and determination and a cheerful mental condition have a great part to play in effecting a recovery, I think it unadvisable to congregate invalids where their thoughts are constantly employed in comparing notes with fellow invalids, and where they are subjected to the depressing influences that necessarily surround disease.

Again, all authorities agree now-a-days that an aseptic air is a prime essential in effecting a cure. I need not run over the writers to prove this fact. It is a well-recognized principle, and can be summed up in the words of Dr. Hermann Weber: "Hence it is clear that *purity* or an *aseptic state* of the air is the first demand which we ought to make on the climates to which we send persons affected with phthisis;" and then later on he writes: "*Purity* or *aseptic quality of the air is incompatible with the crowding together of a large number of invalids.*"

This is, it seems to me, a positive objection to the sanatoria, that by crowding the invalids together they render an air aseptic in itself very foul and septic. So well recognized is this that great pains are taken at most sanatoria to produce good ventilation.

But no better precautions can be taken, it seems to me, than to isolate such cases from each other.

I must confess that it strikes me as somewhat absurd to advocate the absolute necessity for a pure, aseptic atmosphere, and then to constantly subject the patient to septic influences.

Dr. Geddings, of Aiken, in a recent paper, writes: "The physician in search of a health resort for his phthisical patient wishes to know, above all things, the extent to which the air of the place proposed is aseptic." Later, in the very same paper, which is a strong plea for the desirability of Aiken as a health resort because of its possessing an aseptic atmosphere, he writes:

"For a number of years I have resided near a large hotel which, during the winter, is frequented by a number of consumptives in every stage of their disease. These people, in expectorating, not infrequently miss the spittoon, and the muco-purulent sputa reach the carpet-covered floor. Others, again, use their pocket-handkerchiefs as cuspidors, or, as I have seen them do, they spread over the bed a large newspaper for that purpose, preserving it until the physician makes his visit in order that he may see the amount and character of the expectoration. Thus, even when not deposited upon the floor in the first instance, the sputum dries and portions of it, after being diffused through the atmosphere of the rooms, eventually settle upon the carpet. Then, mixed with dust, the bacilli are frequently stirred up by sweeping, but, in obedience to the laws of gravity, soon return to their resting-place on the carpets.

This goes on for months; day after day, week after week, the process is repeated, and it would be difficult to devise a better method of making a wholesale collection of tubercle bacilli."

We accept the doctor's statement, and believe that his conclusion is correct. It would be difficult to devise a better method of making a wholesale collection of tubercle bacilli.

Inasmuch as he also tells us that this large hotel is frequented by consumptives who have gone to Aiken under the advice of physicians, because its air is so thoroughly aseptic, we congratulate them on having attained their object so thoroughly.

But, leaving now the general discussion, I must hasten to summarize my ideas.

I am a firm believer, from years of experience and on theoretical grounds, in the efficacy of the Colorado climate in the arrest of a large number of cases of pulmonary tuberculosis of the types mentioned by Drs. Knight and Lindsay. I believe that the best results are obtained under the advice and careful supervision of a competent physician on the spot. I do not believe in congregating invalids, quite as much because of the dread of mental contamination as because of the exposure to septic influences.

I am convinced that good results are only to be obtained by paying strict attention to the minutest details in each individual case in regard to the diet, exercise, sleep, ventilation, clothing, the several functions of the body—in fact, by a close watch over a patient's daily life.

I know that this can be done, as it is now being carried out in Denver, Colorado Springs, Manitou, and other places in Colorado, by permitting the invalid to live a home life, in his own house or one that he rents, with his family; or, where such surroundings are not possible, in a well-selected boarding-house.

There are objections at times to this method. The physician does not invariably have the absolute control of his patient that he would have were the case placed under strict surveillance in an institution for such cases, and bad results do occur, as I presume they do even at Görbesdorf or Falkenstein. But, gentlemen, I have been a consumptive invalid myself, and many of you have also been in the same condition yourselves, and I appeal to you, if you do not feel with me, that as a consumptive you would rather live as a man, under the plan pursued in Colorado, than be caged with a crowd of hollow-coughing consumptives in any sanatorium, even though it might have the covered walks and the winter garden, suitably warmed and ventilated, of Görbesdorf itself.

One objection is frequently made to Colorado as a resort, and that is that it is no place for a poor man.

Unfortunately this is true. The expense of getting here is great, and the cost of living after one reaches here is considerable. It is to be doubted, however, if the erection of sanatoria would materially help affairs. To be properly conducted they are expensive, and Dr. Kretzschmar says of Dr. Dettweiler's establishment at Falkenstein that the expenses amount to not over twelve marks or three dollars a day, a condition of affairs which would certainly not help a poor man very much, and a daily expense which would enable any one to live very comfortably in Colorado.

SUDDEN DEATH IN TYPHOID FEVER.

BY A. McPHEDRAN, M.B.,
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IN connection with an editorial on this subject in THE MEDICAL NEWS of February 15, 1888, this case will prove of interest. The following notes of the history are abstracted from my hospital case-book.

Thos. M., aged thirty-two, laborer, was admitted to the Toronto General Hospital, December 11, 1888. He said he had been ill one week before entering. His temperature was 105° F., and he seemed very ill for so early a period in the disease; this was probably due to the disturbance incident to his removal to the hospital—he came from one of the suburbs, a distance of six miles. A few days later the symptoms moderated and presented those of an ordinary attack of typhoid fever. He continued to do well, and on December 20th his temperature was 102°, pulse 100, regular and of good volume and tension; taking plenty of nourishment; sleeping well; urine normal; no diarrhœa.

December 21. His condition was reported by Dr. T. P. Weir, my house physician, as quite satisfactory, pulse being even stronger.

December 22. 1 A. M. Seen by Dr. Weir, who made a special visit to the ward on account of a change of nurses. Sleeping quietly. A few minutes later he asked the nurse, who was attending a patient in the next bed, for a drink, which was given without his making any movement. A minute or two later she noticed that his breathing was distressed. He moved his arms about and seemed to be conscious. Before Dr. Weir, who was summoned, could reach him he was dead.

Post-mortem.—Ulcers in lowest twenty inches of ileum indicated the end of the second week of the disease. Mesenteric gland near ileo-colic valve very large and diffluent. Solitary glands in cæcum, ascending and transverse colon enlarged but not ulcerated. Kidneys healthy. Lungs: some old pleuritic adhesions; slight œdema at apex of right; some venous congestion of both posteriorly, probably post-mortem. Heart: right auricle greatly distended with recent black clot; right ventricle considerably distended; left side of heart contained a little blood, ventricular wall not contracted. Brain was not examined.

The symptoms attending death in the foregoing case indicate cardio-respiratory failure as the cause of death and as no adequate cause of death was to be found in the lungs the cause must be attributed to heart failure. The symptoms were not compatible with a cerebral cause. The tissue of the heart was firm and showed no histological change to account for such failure. There were no evidences of the existence of such causes of sudden death in typhoid fever as hemorrhage, embolism, uræmia or overwhelming typhoid toxæmia. The only cause suggested in the aforesaid article in THE MEDICAL NEWS having even a possible connection is special localization of the infecting principle upon the pneumogastric nerves. That such localization ever occurs is only a theory incapable of proof; the probability of its being true is, to say the least, doubtful. It is difficult to understand how a poison that is depressing in all the other manifestations of its effects could in this instance act as a stimulant and so excite the vagus centre as suddenly to arrest the heart's action in diastole.

A much more probable theory is given in a most interesting and valuable paper lately published by Prof. John McWilliam, of the University of Aberdeen, on "Cardiac Failure and Sudden Death."[1] He says that

"A long series of experiments on the mammalian heart has convinced me that in ordinary circumstances sudden cardiac failure does not usually take the form of a simple ventricular standstill in diastole. . . . . It assumes, on the contrary, the form of violent, though irregular and incoördinated, manifestation of ventricular energy. Instead of quiescence, there is tumultuous activity, irregular in its character and wholly ineffective as regards its results. . . . . The muscular action partakes of the nature of an arhythmic, incoördinated, and rapidly repeated contraction of the various muscular bundles. Some bundles are in a state of contraction while other bundles are relaxed, and instead of a coördinated contraction leading to a definite narrowing of the ventricular cavity, there occurs an irregular and complicated arhythmic oscillation of the ventricular walls which remain in a position of diastole."

He points out that the susceptibility of the heart to be thrown into this state of "delirium" is increased by any conditions that interfere with its normal nutrition, as, for example, in the course of prolonged experiments in which "the nutrition of the heart is altered and impaired, its irritability is markedly exaggerated and the tissue has passed into a state of unstable equilibrium." The heart being in this condition of unstable equilibrium very slight causes may suffice to throw it into this state of irregular fibrillar mode of contraction—or "delirium cordis;" as, for instance, the gentlest handling or even a touch with the tip of the finger. And not only so, this state of delirium not infrequently develops spontaneously and without the intervention of any apparent irritant or immediate disturbing agency.

In the light of these facts there seems little room for doubt that the nutrition of the heart is so altered in all depressing diseases, especially in typhoid fever and diphtheria, as to render it very liable to be thrown into "delirium," and this derangement of the heart's action probably occurs in all cases of sudden death in these diseases.

84 COLLEGE AVENUE.

[1] British Medical Journal, January 5, 1889.

RIGHT-SIDED APHASIA IN A LEFT-HANDED PERSON.

BY H. C. WOOD, M.D.,

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THE following case has seemed to me worthy of being recorded on account of the curious relations between the habitual use of the hands and the speech function. On reading the record taken from my note books, it will be seen that the aphasia was the result of a lesion in the left side of the brain. Although the person was for the ordinary purposes of life left-handed, he had always written with the right hand; the centres connected with writing, in locating themselves, so to speak, had followed not the centres of habitual physical action, but the centres of speech function. In other words, this man possessed a brain in which the speech centres were highly developed in the left hemisphere, although the motor centres for the hand and leg, and probably for the face, were more highly developed in the right than in the left hemisphere, and in which when the art of writing was learned, the motor centres of the left hemisphere underwent special development, apparently on account of their close relations with the centres of speech.

Mr. S. B. K., was brought to my office by Dr. E. N. Musser of Mechanicsburg, Pa., with the following history. A retired merchant of about fifty, he was in good health until the 10th of September 1888, except that for several days he had complained of numbness of the right side, especially of the fingers; although examination by Dr. Musser failed to detect any loss of sensation in the arm. On the day mentioned, while telling a story, he suddenly lost the thread of his narrative and after a moment's silence, said to a friend, "There is something the matter with me." On attempting to walk, he found that locomotion was impaired; but leaning on his friend's arm he finally reached home. When Dr. Musser saw him he could not walk alone at all with his eyes open, although with assistance he could. "When his eyes were closed, could not take a step." He could move his hands and feet, but in walking had a distinctly ataxic gait. There was no headache; no convulsive movements; no loss of consciousness. The aphasia gradually increased, and

by the end of the week it was almost complete. It was also accompanied, Dr. Musser thought, by progressive loss of mental power.

The following I take directly from my note book. "The patient is evidently left-handed. Dr. Musser states that he has always used the cane, saw or hatchet with the left hand. In my office he uses the scissors perfectly well with his left hand, but he writes, as he always has done, with his right hand. The left pupil is a little larger than the right; the left grip 100, the right 90; station on both feet good; can stand distinctly steadier on the left than on the right leg, but station is not much affected by shutting the eyes. In walking he drags his right toes; when he walks with his eyes shut, does so with evident difficulty, staggers and seems about to fall, although he recovers himself. The knee-jerk on the left side is apparently a little more active than on the right leg; there is distinct loss of sensation of the right hand, and a slighter loss in the right foot; there is no alteration of the optic disks, and an attempted examination of the visual field failed on account of the patient becoming very excited so that it was utterly impossible to make him understand, or to get him to do what was wanted. He hears the watch on the right side about three inches, on the left side not more than five or six inches. There is no distinct facial palsy.

The patient's intellectual powers are evidently much affected, it being very difficult to get him to understand what is wanted. The aphasia is very pronounced, but not absolutely complete. He formerly talked German fairly well, but at present uses no German except one or two words; seems to understand questions much less readily than when addressed to him in English. The following questions and answers give a fair idea of his aphasic condition. "How long have you been sick?" "Twill tim t-t twill till." "Have you headache?" "Yes, sir." "Where?" "I-I have t-will it t-twill l-leav pal north till or nor." "Can you read?" "Yes, sir." (Reads.) "Meri can ant only can't see at does lesanteen an und max, l-tel neville." In answer to the question if he went to bed by himself, he commenced to make signs of undressing. When asked what time it was, he looked at his watch and said, "warter of three," it being twenty minutes of three, and he evidently seeing that the hand was at twenty minutes and near the quarter, and not being able to say "twenty minutes," did the best that he could. When asked to write his name and address, wrote his name legibly, then the address illegibly; and when asked to write some words, was unable to do so at all.

HÆMATOMA OF THE SEPTUM NARIUM.[1]

BY MAX THORNER, M.D.,
OF CINCINNATI, OHIO.

C. H. S., German, tailor, consulted me about eight weeks ago in reference to an obstruction of both nostrils. He had been under my care during last summer for nasal polypi, which had been successfully removed. He attributed the present trouble to a "cold," or the possible recurrence of the polypi. Upon examination I found that both nostrils were entirely obstructed by a tumefaction on both sides of the cartilaginous septum, which, touching the inferior turbinated bones, rendered nasal respiration well-nigh impossible. The swelling, which was distinctly fusiform, appeared to be covered by a purplish-red, glistening mucous membrane; it was not sensitive to the touch, and yielded readily to pressure with the probe.

Since there had never been any evidence of this tumor in the patient's nose during his former treatment, I elicited upon further inquiry the following history from him:

About a week previous to this consultation he happened to come home in a wagon, and arriving at a door in the rear of his home, jumped down hastily on to the door steps. At this very moment his wife, who had been awaiting him, suddenly opened the door, which opened outward, and he was struck very forcibly by the door on his nose. He, however, did not pay any attention to this accident, there being a slight hemorrhage only, whilst the pain produced by the injury, though intense in the beginning, subsequently subsided within a short time.

For that reason, a few days later, when he first noticed the obstruction of his nose, he did not attribute it to the sustained contusion, but simply charged it on the much-abused and popular etiological factor of "having caught a cold."

I made an incision into the tumefaction, on the left side, with a curved bistoury. About a drachm of blood having escaped, the tumor on both sides of the septum flattened, and the mucous membrane lay close to the cartilage. When I saw the patient the next day the sac had partially filled again. But this time he refused another incision, in order to try first some home remedies. Three days later the swelling was as large as in the beginning. In spite of my urgent advice to have another incision made, the patient insisted upon continuing poulticing his nose, which, according to popular belief, would reduce the swelling without resorting to knives.

He reappeared, three days later, in a somewhat altered condition. The last days he had felt miserable, had had several chills, had been unable to sleep, and had the most intense pain in his whole head. He complained also of loss of appetite, and of pain in his eyes. The latter presented chemosis of the conjunctiva, epiphora, and œdema of the lower lids. The swelling on both sides of the septum had increased, the mucous membrane covering the same was crimson, and fluctuation from one nostril to the other was very distinct. There was no doubt that pus had formed, and that we had now to deal with an abscess instead of a hæmatoma. By two long incisions across the bulging swelling on both sides of the septum, a considerable amount of pus was evacuated. In the middle of the cartilaginous septum was a perforation the size of a small bean. The probe could be introduced about one inch backward, and touched the denuded vomer.

[1] Read before the Cincinnati Medical Society, February 12, 1889.

After-treatment consisted in tamponing the abscess cavity with iodoform gauze, repeated every day; and in three weeks the cavity had closed, leaving only a small perforation in the cartilaginous septum. There remained, however, around this perforation, and especially near the floor of the right nasal fossa, a solid thickening on the septum, representing, no doubt, an ecchondrosis, due to a simultaneous perichondritis.

Hæmatoma of the septum narium is not a frequent occurrence. A great many text-books do not mention it at all. According to Sir Morell Mackenzie, it is nearly always caused by direct injuries to the nose. An extravasation of blood between the deeper layers of the mucous membrane and the cartilage takes place; and the septum mostly being fractured, the escaped blood assumes the shape of a bilateral tumor on both sides of the septum. Morell Mackenzie, however, mentions two cases of spontaneous, unilateral hæmatoma of the nasal septum. If the blood be not absorbed readily, which is not probable, surgical measures must be resorted to; otherwise there will soon be purulent degeneration of the contents of the sac, as occurred in my case.

The diagnosis is easily to be made: the history of a previous traumatism, the sudden development of a bilateral, symmetrical tumor, the physical condition of the same, the absence of pain and fever, and, eventually, in doubtful cases, the aspiration of the contents with the exploring needle, will settle any doubt regarding the nature of the tumefaction.

In conclusion, I wish to call attention to the fact that, as it was the case with my patient, there remains mostly a perforation in the septum. The latter has been regarded, and is sometimes still looked upon, as a pathognomonic sign of a specific infection. On a former occasion I have tried to show how little we can depend upon the presence of a perforation in the nasal septum alone for the diagnosis of syphilis.

I have seen a number of such perforations, where syphilis could be excluded with certainty, although I fully agree with J. Solis-Cohen, when he says: "The probability is, in at least a fair proportion of instances, that the perforation has resulted during the course of a syphilitic coryza, which has occurred in early infancy." (*Diseases of the Throat and Nasal Passages*, 2d ed.) Yet there is a variety of other circumstances that may produce perforations: as in the reported case, hæmatoma or abscess of the septum, or operations performed upon the same. We find, furthermore, perforations as sequelæ of scrofulous or tubercular affections, of phlegmonous inflammations, and of lupus of the nose. They have been observed following variola and typhoid fever, and they are found occasionally in chronic rhinitis, especially in the atrophic form. Also the bad habit of removing, with the finger-nail, crusts and scabs adhering to erosions of the septum has frequently resulted in perforations. And according to Carl Seiler (*Diseases of the Throat, Nose, and Naso-Pharynx*, 3d ed.), they are said to be always present in workmen employed in bichromate of potash works.

354 W. EIGHTH ST., CINCINNATI.

HOSPITAL NOTES.

MATERNITY HOSPITAL OF PHILADELPHIA.

SERVICE OF BARTON COOKE HIRST, M.D.

HÆMATURIA IN PREGNANCY.

This is a subject which receives almost no attention in current works on obstetrics, and yet blood in the urine is a symptom of not such very rare occurrence in the pregnant woman, and is one, moreover, that always excites the alarm of a patient and those interested in her, and may cause the attending physician some anxiety.

M. S., primigravida, aged twenty-six years. When about six months pregnant she first noticed that her urine was bloody; the hæmaturia appeared suddenly, and to as great a degree as it has since attained. There is no history of malarial infection. There have been no intervals in which the urine was clear; at every micturition there has been a considerable quantity of blood mixed with the urine. There is no history of traumatism. As long as the patient can remember she has suffered pain over the region of the kidneys, which, at intervals, has become quite intense, shooting down along the course of the ureters. Since the appearance of the hæmaturia there has been some difficulty in urination; the flow is suddenly stopped, apparently by the lodgement of a small clot in the urethra; as soon as this is expelled the stream again becomes free. This condition persisted until the delivery of the infant. On the second day of the puerperium the quantity of blood was much diminished; on the third day it had quite disappeared, and there is now, nine days post-partum, no trace of it.

The explanation of this case, as of the majority in which bloody urine appears during pregnancy, is very likely to be found in bleeding hemorrhoids of the bladder, produced by the pressure of the large gravid womb upon the pelvic veins.

There were symptoms pointing to the possibility of an impacted renal calculus, but the absence of acute pain while the patient was under our observation; the sudden onset of the hæmaturia when the uterus had reached a size to exert pressure upon the pelvic organs; the rapid disappearance of the blood as soon as this mechanical obstruction was, in great part, removed, all point to the hemorrhoidal origin of the hemorrhage.

The treatment of such a case can be little more than expectant until pregnancy is terminated, unless—a rare event—the quantity of blood lost is alarming.

MEDICAL PROGRESS.

The Treatment of Ileus.—DR. GOLTDAMMER recently delivered an address on ileus before the Berlin Medical Society. It was based on fifty observations (thirty men and twenty women). Thirty-five of the whole number

died and fifteen were cured. With regard to the fundamental condition accurate statements could be made in thirty-eight cases. In ten cases there was carcinoma of the colon; in seven invagination; in six the cause of the ileus was found to be kinking of the coils of the small intestine, owing to circumscribed peritonitis; in five it was old cicatricial stricture; in four volvulus; in two tubercular peritonitis; in two internal incarceration. In one, in which the patient was moribund when admitted, the cause was reduction of a hernia *en masse*, and in one a gall-stone impacted in the small intestine. In all the malignant cases it was the large intestine that was affected. Rectal cancers were not included. In only two of the ten cases could a tumor be felt in the region of the sigmoid flexure. The seat of the stricture could never be reached from the rectum. In one of these cases the patient was a girl, aged twenty-five; in another, a man, aged twenty-six. Of the other cases of chronic stricture of the gut there were four of the old cicatricial stricture of the large and one of the small intestine. In two cases tubercular peritonitis had led to the matting together of the coils of small intestine and of their adhesion to the abdominal walls, and hence to strangulation. Of the intussusception cases the affected part was in one the descending colon; in three the small intestine; in two there was invagination of the ileum into the colon; whilst one case remained doubtful. In three of these cases a distinct tumor could be felt. In six cases death occurred after a duration of from four to eight weeks; one case recovered. The volvulus cases as well as those of internal strangulation all ended fatally in a few days. The treatment was confined to two things: the exhibition of opium in large doses and rigorous diet. The beneficial effect of opium on the acute symptoms of intestinal occlusion is well known. For this purpose it should be administered in the largest doses till contraction of the pupil, or less frequently, sleep is induced. If the opium cannot be kept on the stomach, morphine must be given hypodermatically. Injections of water or inflation with air should next be tried. In chronic obstruction a slow passage of feces may occur when, owing to the stoppage of peristalic action, the pressure of additional feces from above against the strictured point is arrested. Of the acute forms of stricture, intussusception is unquestionably benefited by opium. In these cases the imprisoned gut may spontaneously become released. One is often told by such patients that they have had similar attacks before. Every stimulation of peristaltic movement increases the constriction of the invaginated portion of intestine. The same holds good with regard to volvulus and internal strangulation. Here also arrest of peristalsis mostly prevents further filling of the intestine, and makes relief of the obstruction possible. For the release of the upper intestinal segment the application of the stomach-pump and puncture of the distended gut should also be tried. Together with the opium treatment, the strictest diet must be prescribed. Only small pieces of ice should be swallowed; nutrient enemata must be given. When complete rest of the bowels has been induced one to three litres of water should be injected with moderate force once or twice a day. By this plan of treatment Dr. Goltdammer succeeded in curing fifteen out of the fifty cases. From this he inferred that it is premature to look upon operative interference as the only remedy in ileus. The ten cases of cancer and the five of old cicatricial stricture afforded no hope of success from operation. In fifteen other cases it might, perhaps, on the whole, be conceded that timely surgical intervention offered a moderately good prospect.

With regard to the question why in these cases no operation was attempted, Dr. Goltdammer reminded his hearers that during life it was impossible to make a precise diagnosis. From this difficulty of diagnosis, and from the fact that a considerable number of patients recovered without operation, he argued that the field of preliminary laparotomy ought not to be extended. As regards diagnosis, it was perhaps possible to divide cases into two groups—namely, chronic mechanical obstruction of the lower part of the intestine, and acute internal strangulation and intussusception. But even this distinction is often not possible in particular cases. Moreover, the complication with peritonitis involves great difficulties; even coprostasis cannot always be excluded under the circumstances. A number of accurately recorded cases serve to prove that a favorable turn may often take place at a very late period of the illness. In addition to this, laparotomy is a dangerous operation. Patients suffering from ileus seem to bear the operation very badly, in spite of all antiseptics. Collapse and weakness of the heart's action are usually very marked. The peritoneum is, as a rule, not in a normal state, and, therefore, reacts differently from a healthy membrane. Unexpected difficulties are also often met with in operating. Dr. Goltdammer quoted instances exemplifying this.

Setting aside cases in which ileus depends on a hernia, preliminary laparotomy must, he said, be limited to (1) cases in which intussusception is recognized—the condition of which is most readily diagnosed with any certainty. The youth of the patient, suddenness of onset, absence of meteorism, loose and bloody stools, tenesmus, with the presence of a tumor of characteristic shape, will enable the experienced to make a diagnosis. (2) Cases in which, after an acute onset, and in spite of energetic treatment with opium, severe symptoms of obstruction and collapse persist, so as to give rise to the suspicion of acute internal strangulation. In both these cases laparotomy should be determined upon early. (3) The operation should be undertaken as a last resource in cases in which, after the subsidence of all symptoms under opium, severe symptoms set in anew. In these cases surgical interference may often be too late.

The discussion on Dr. Goltdammer's address took place at a later meeting of the Society on March 20th. Dr. Schlange took up a different standpoint from that of the lecturer, whose views he described as retrograde and opposed to the results of modern surgery. Even if the making of a precise diagnosis had to be postponed, a surgeon who operated in every case (the opening of the abdominal cavity being now free from danger) would not only have cured all the cases which had got well under Dr. Goltdammer's treatment, but would have rescued a much larger number at least from immediate death, even if the essential disease had continued to exist. Of course, laparotomy was practicable only before peritonitis had set in. All depended on an early diagnosis. He warned surgeons against operating in the later stages of the disease after the onset of peritonitis.

Dr. Fürbringer agreed essentially with Dr. Goltdammer's view, especially as regards the uncertainty of

diagnosis and the treatment, but he made more use of washing out the stomach and of injections high up into the intestine. Of the patients under his charge in his wards nearly two-thirds had died, while one-third had recovered, under this treatment. He called particular attention to one group of cases, which to a certain extent represented a distinct class; it was characterized by five marks: 1, stoppage of the bowels lasting from eight to fourteen days; 2, stercoraceous vomiting; 3, meteorism; 4, exudation which could be felt from the rectum; 5, atypical fever. These cases usually ended fatally from perityphlitic processes. Of such cases, which seemed almost hopeless, he had cured six by the treatment mentioned.

DR. KÜSTER entirely endorsed Dr. Goltdammer's suggestions. An operation must be performed in all cases of acute strangulation, especially reduction *en masse*, which could be diagnosed with certainty. Among the cases of slow development there was a group which was also open to diagnosis, namely, neoplasms, the presence of which could be recognized by a mucous discharge, which gradually became bloody. These cases called for enterostomy. For the bulk of other cases surgeons must first endeavor to obtain accurate means of diagnosis.

DR. SONNENBURG urged that surgeons should seek to determine the seat and nature of obstruction, and not rest contented with a general diagnosis of "ileus." Dr. Goltdammer had contributed nothing toward the elucidation of this important question. In the opium treatment there was danger that the feeling of comfort given by the drug might cause the favorable time for surgical interference to be lost. He referred to Von Wahl's method of inflating some segments of intestine as being possibly useful for diagnosis.

PROFESSOR SENATOR recalled an utterance of Professor Bardeleben in a previous discussion on this subject that people might, so long as the diagnosis was so uncertain, reasonably differ as to whether an operation was justifiable or necessary in such cases. For his own part he did not think the present discussion afforded grounds for an essentially different standpoint.

DR. LANDAU mentioned two cases of ileus caused by retro-uterine hæmatocele. Such cases were open both to diagnosis and operative treatment.

After DR. JACUSIEL had spoken in support of Dr. Goltdammer's views, the latter replied to the objections which had been brought against his statements and suggestions, which, he said, were based on existing circumstances, and were not intended to govern medical practice for all time to come.—*British Med. Journal*, April 13, 1889.

Treatment of Intestinal Hemorrhage in Typhoid Fever.—DR. LINDSAY, Physician to the Belfast Royal Hospital, in a paper on this subject in *The Dublin Journal of Medical Science*, April 1889, says that he has always been accustomed to follow Murchison's instructions, and has given tannic acid, laudanum, and turpentine, with ice externally and ergotin by hypodermatic injection. Some good authorities prefer to omit the turpentine, but he cannot say that he has ever seen any harm resulting from its use, and its power as a hæmostatic is undoubted. In one of his cases he gave laudanum pretty freely, in spite of the presence of albumin in the urine, and with good results—no sign of narcotism appearing. He is disposed to think that in intestinal hemorrhage, as in hæmatocele and other forms of internal bleeding, opium may be given fearlessly, and pushed even to heroic doses. Stimulants are certainly required in some cases, but must be regulated with much caution.

In conclusion, he says that while intestinal hemorrhage in typhoid fever is a serious symptom, it is by no means usually fatal, and prompt and decisive treatment is called for, and will often prove effectual.

Treatment of Hysterical Convulsive Cough.—

℞.—Powdered valerian root . 15 grains.
Powdered digitalis . . 1½ "
Powdered sugar . . 15 " —M.

Divide into ten powders. One to be taken every hour.

If the cough comes on during the menstrual period, and is accompanied with dysmenorrhœa, one teaspoonful of the following should be administered every two hours:

℞.—Carbonate of ammonium . 75 grains.
Tincture of opium . . 10 drops.
Decoction of yarrow . . 4 ounces.
Syrup of saffron . . . 1 ounce.—M.

—*L' Union Médicale*, March 24, 1889.

The Hot-air Treatment of Tuberculosis.—A supplement to the *Berliner klin. Wochenschr.* of March 11th contains a recent address by Professor Kohlschütter, on Weigert's hot-air treatment of pulmonary tuberculosis, given at a meeting of the Aerzte-Verein, in Halle, on February 20th. The fact that this treatment has already become a subject of comment by the newspaper world did not deter the speaker from examining the question scientifically. It is known that tubercle bacilli are peculiarly susceptible to influences of temperature; their vitality is lowered by a temperature of 101.3° F., and they are killed by a temperature of 107.6° F. To breathe hot air continuously for any length of time is impossible—only one of the speaker's patients could do so for as long as an hour—and the beneficial action of hot air in the above sense must be on the well-known principle of intermittent gradual sterilization, the germs being killed off in successive crops as they develop. Weigert, in attempting to apply this clinically, showed that extremely hot dry air can be breathed without injury. In Weigert's apparatus (which may be procured from A. Meissner, 71 Friedrichstrasse, Berlin), the thermometer shows a temperature between 480° and 570° F., and, although the air actually inspired is doubtless not so hot as this, it is hot enough to cause the expired air to have a temperature of 60° C. (140° F.). In a particular case of Professor Kohlschütter's the following effects were observed: in seven weeks after inhalation, twice daily, the chest-girth increased from 36 to 38 inches, and a pleuritic exudation in the left side was absorbed. Crepitation and dulness were replaced by normal physical signs, and good breath-sounds were heard over both lungs. Careful examinations of the sputa showed that the bacillary appearances were remarkably altered. At first the bacilli were numerous and more or less uniformly scattered; subsequently they were found only in groups of three or four, and were far fewer. At a later stage they had all but disappeared. The temperature of the body rises

about the third of a degree (F.) after each inhalation, but soon subsides. The pulse frequently showed a difference of only five, as counted before and after each inhalation. The respirations became deeper and slower; the patient in question—several others were treated—at last could do with seven respirations per minute; this is ascribed to the difficulty of inspiring through long tubes. The previous dyspnœa was lost, and more exercise could be taken. The cough at first increased a little, the expectoration considerably; but, at the date of the address, both were lost altogether. The bodily weight had increased from 73 to 73.57 kilos. (nearly two pounds). The author expresses himself as well satisfied with the results so far, and thinks this method of treatment worthy of more extended trial.

Salicylic Acid in Chronic Tuberculous Joint Disease.—DR. R. W. LOVETT, in a paper on this subject, published in the *Boston Medical and Surgical Journal* of April 11, 1889, reaches the following conclusions:

That salicylic acid in large doses is useful as an aid to the mechanical treatment of chronic tuberculous joint disease, not in routine conditions, but—

(1) When night cries are present.

(2) When the diseased joint is very painful and sensitive to jar.

(3) When vomiting and general discomfort are associated with an increase in the local disease.

That relief from pain, and diminished sensitiveness follow at once, as quickly as in acute articular rheumatism, and that the drug should be given in as large doses as for that affection until the pain is relieved or the physiological effect is produced.

Atrophy of the Optic Nerves Treated by Suspension.—DR. DARIER, at a meeting of the Société d'Ophtalmologie de Paris, held March 12, 1889, stated that the success obtained by Dr. Charcot from the suspension treatment of tabes had led him to try the same treatment in optic atrophy. The results surpassed all expectations. In all thus treated acuity of vision was greatly improved; one of the patients, who was nearly totally blind, being at present able to distinguish between objects. In two other patients acuity of vision was increased from one-sixth to one-third, and in still two others from one-quarter to one-half.

DR. ABADIE related the history of an eighteen-year-old patient, the sufferer from juvenile atrophy (his condition otherwise being good), in whom suspension wrought such changes that he was able to read, which he had not been able to do for six months.—*Wiener med. Presse*, March 31, 1889.

Treatment of Tuberculous Ulcers of the Tongue.—

℞.—Lactic acid . . . . . 80 parts.
Water . . . . . 20 " —M.

The affected parts to be touched several times daily with a camel's-hair brush previously immersed in this solution.—*Revue de Thérapeutique*, April 1, 1889.

Flute-player's Cramp.—A case of professional cramp in a flute-player was well described by DR. FÉRÉ at a recent meeting of the Société de Biologie. The patient was a habitual member of a theatrical company, to whom the flute was the only instrument allotted. He felt at first a paralysis in the extensors of the ring finger and little finger of each hand, and then a cramp in the opposing muscles which made him drop the instrument, sometimes with a cry of pain. Local massage and general tonic treatment brought him back again to a condition fit to resume his former work, though those of his audience with a finer ear than the rest could trace the effects of the cramp in the slightly slower time in which the notes played with the ring finger and little finger were given. Brown-Séquard took the opportunity to press the remark that in such cases of professional cramp the fatigue of the whole body was at least an equally essential component with the local strain. In a case of writer's cramp in a Cincinnati journalist, he had seen both feet as much affected as both hands after an excess of writing. (*Le Progrès Méd.*, 1889, p. 126.)—*The Practitioner*, April, 1889.

Trephining in Epilepsy.—The operation of trephining for traumatic epilepsy has been followed by some brilliant results, and there can be no question as to the justifiable nature of the procedure. The knowledge of the topography of the brain which has been brought within the reach of practical surgeons by the valuable researches of Ferrier and others has made it a comparatively easy matter to localize the exact seat of lesion in some, at least, of the cases of traumatic epilepsy. The patient conscious of the coming nerve storm, is often able to refer the onset to a certain part of a limb. This affords a valuable clew to the situation of the spot in the brain the nutrition of which is at fault. The consideration of these cases is always most interesting, and surgeons may well be proud of the success which has followed so important a procedure.

M. Péan, of the St. Louis Hospital in Paris, has just recorded an interesting case of epilepsy cured by the application of the trephine. The patient was suffering from slight epileptic seizures, the right side being mainly affected, and the lower limb more than the upper. During the intervals between the attacks, there was some paresis of the right leg. The diagnosis was made of a cerebral tumor, and its localization determined. The trephine was applied, and a fibro-lipoma was found attached to the pia mater. The growth was removed forthwith, but for some days after the operation the convulsive fits continued. Subsequently, however, they entirely ceased, and the patient became convalescent.

Homeriana for Tuberculosis.—DR. LASKOFF states in the *Allg. med. Ctrl. Ztg.* that he has successfully tried homeriana in the treatment of tuberculosis. This plant grows wild in Russia. Belonging to the order of Polygonaceæ, it contains an irritating oil, which, in fact, appears to be its foremost active principle. He administered this remedy in the form of an infusion, generally in affections of the respiratory passages, especially bronchitis and tuberculosis. Of 112 cases of tuberculosis treated with this remedy, he claims to have cured no less than 90; certainly a large number. The first symptoms of improvement observed were a fall of the temperature and a diminution in the expectoration. At the same time auscultation and percussion revealed marked improvement in the pulmonary symptoms.

In the more advanced stages of tuberculosis the action

of this drug diminishes, and although then unable to effect a cure, it still decreases markedly the night-sweats, cough, expectoration, etc.

The drug is administered in decoction or infusion made from one ounce of homeriana to two pints of water, which amount is to be taken during the twenty-four hours.—*Wiener med. Presse*, March 24, 1889.

Palpation of the Kidney.—DR. JAMES ISRAEL (*Berl. klin. Woch.*, No. 7, 1889) says that in palpating the kidneys one is apt to make the mistake of deviating too much laterally. If a line be drawn upward from the middle of Poupart's ligament parallel to the middle line, and the hand pressed deeply about two fingers' breadth below the point where this line intersects the costal margin, the normal kidney may be felt. It is important to have the abdominal muscles perfectly lax. Chloroform is useful, but has the disadvantage that we are unable to examine the organs in deep inspiration. It is also necessary to have the colon emptied.

Three methods may be adopted to palpate the kidney:

(1) *Bimanual palpation* in the dorsal position The patient is placed on a firm couch, the knees slightly bent over a pillow. If the right kidney is to be examined, the physician stands on the right side, places the left hand under the lumbar region and with the right presses from before backward, the middle finger being placed one inch below the junction of the tenth rib with the costal margin. Pressure is exerted during expiration, and is kept up continuously until the fingers reach the kidney. In this examination, very gently and slowly increasing pressure (always with the flat hand) is necessary. The points of the fingers should never be bent, as it leads to reflex contraction of the abdominal wall.

(2) *Guyon's method*—"*ballottement rénal*"—consists in the production of a rapid movement of the kidney from behind forward, so that the organ may be felt from the anterior abdominal wall. The position is the same as in the former method. While the patient is quietly and slowly breathing with open mouth, one hand laid flatly over the lumbar region gives short regular taps against the loins, so that the overlying kidney is moved forward against the other hand placed in front.

(3) When these two modes fail, a third often succeeds. Here the patient is in the lateral position. He lies on the opposite side with his legs flexed, breathing slowly and deeply with open mouth. With one hand behind, the lumbar region is pressed forward, the patient inspires deeply, pressure is applied from the anterior abdominal wall, and at the end of inspiration the organ may be felt in its lowest position. It is this movement which distinguishes it.

Israel maintains, in opposition to some other authorities, that normal as well as diseased kidneys, if not fixed by new growth, perceptibly move downward in most cases with deep respiration, although not so constantly nor to such an extent as the liver and spleen. This may be readily determined, and in some cases seen, through the abdominal wall. He has demonstrated renal mobility during breathing in the course of an operation. When an incision is made into the cushion of fat surrounding the kidney, the organ may be seen to make a respiratory excursion of an inch in extent. This peculiarity, Israel says, is often of great service in diagnosis.—*The Practitioner*, April, 1889.

Transplanting the Cornea.—The transplantation of clear corneal tissue to take the place of the opaque cicatrix which is left after ulceration has been repeatedly tried. So far the method of doing this, introduced by v. Hippel a few years ago, appears to be the only one followed by anything like permanent success. After having given the operation a more extensive trial, v. Hippel has recently (*Graefe's Archiv*, xxxiv.) published a very full account of it, and has pointed out the precautions which seem necessary at each step. Of eight cases operated on, four were considered successful. From a degree of visual acuity not amounting to more than ability to count figures at six or nine feet, the patients attained after operation $\frac{20}{CC}$. The operation itself is altogether free from danger, and may be undertaken in any case where there is not extensive attachment of the iris to the back of the leucoma, or considerable alteration in corneal curvature. A portion, generally about four millimetres in diameter, is removed from the patient's opaque cornea by means of a trephine, which is guarded by a ledge to prevent its entering too deeply, and the cutting edge of which is set in rotation by means of clockwork, in order to render it possible to obtain great precision in the depth and perpendicularity of the incision all round.

The result of Leber's experiments in connection with the flow of fluids within the eye, as well as the failure of previous attempts at transplantation, led v. Hippel to recognize that an essential condition of success consists in leaving Descemet's membrane intact. Only by doing so can the transparency of the transplanted portion be permanently maintained. In removing the portion circumscribed by the trephine with a pair of fine scissors and Graefe's knife, care must, therefore, be taken not to perforate, while at the same time as level a floor as possible is desirable. The next step consists in the removal of a portion of a rabbit's cornea. This is done with the same trephine, and must involve the whole thickness of the cornea. The difficulty in this step appears to be to keep the rabbit sufficiently quiet, although its cornea is well cocainized to permit of the excised portion having exactly the desired shape. When the portion of rabbit's cornea has been obtained it is glided into position, and care taken that it comes to lie, as far as possible, flush with the rest of the corneal surface, otherwise it is readily displaced. Iodoform is then powdered on the eye, and both eyes are bandaged and not touched for two or three days, after which a daily dressing is applied. No vascularity or intransparency of the graft occurs where it succeeds.—*Edinburgh Medical Journal*, March, 1889.

Creolin in Suppurative Otitis.—The use of creolin in ear diseases is strongly recommended by DR. PURJESZ, of Buda-Pesth. In cases of acute and chronic inflammation of the middle ear he syringes once or twice daily with a solution containing five or six drops of creolin to about nine ounces of water, in addition to which the Eustachian tube is opened up by the employment of Politzer's method, or, if necessary, by means of catheterization. Dr. Purjesz finds that creolin is an excellent antiseptic for this purpose, and in the strength employed by him quite free from any objection on the score of causing irritation. Its low price, too, makes it especially suitable in practice amongst the poor.—*Lancet*, April 6, 1889.

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SYRINGOMYELIA.

BY occasional contributions our knowledge of syringomyelia is becoming more certain and its differentiation more easy. It is a disease in which the cord contains cavities of abnormal size and distribution. As an anatomical curiosity it has been known for two centuries; as a type of disease it has only been clearly recognized during the last ten or twelve years. In Germany and France somewhat numerous contributions to its literature have been made during recent years; English and American medical writers have supplied but few. Gowers' *Treatise on Nervous Diseases*, however, contains a valuable discussion of the pathology of the affection; and Starr, in May, 1888, published in the *American Journal of the Medical Sciences* an interesting summary of its literature, pathology, and symptomatology. Debove and Déjerine (*Gaz. Hebd.*, March 1 and 8, 1889) have furnished two of the most instructive recent papers in the form of carefully detailed records of two patients who were exhibited before one of the French medical societies.

The rapidity with which, in this age of medical enterprise, the literature of a subject grows is shown by the fact that five years ago Fürstner's collection of four cases, with autopsies, was quoted as a most valuable contribution to the subject, while in 1887 Bäumler had succeeded in collecting one hundred observations—sixty-six with autopsies and clinical histories, twenty-five purely anatomical observations, and ten purely clinical cases.

Cases of syringomyelia vary greatly in symptomatology according to the size, location, and ramifications of the cavities within the spinal cord, as well as according to the congenital, stationary, or progressive character of the disease. A certain more or less regular syndrome is characteristic of the ordinary form of the affection. It is, in brief, one of atrophy, with paralysis irregularly distributed and progressing; peculiar disturbances of the sensations of pain and temperature, and marked vaso-motor and trophic disturbances, such as cyanosis, heat and flushing, eruptions, ulcerations, abscesses, changes in the excretion of sweat, and affections of the bones. The picture presented by Déjerine's patient was one of atrophic paralysis, which began at the age of twenty-five years, affecting the upper limbs and trunk; fibrillary contractions; scoliosis; no impairment of touch, but marked loss of sensibility to pain and temperature, particularly in the upper part of the trunk, the upper limbs, and the right half of the face; integrity of the special senses; abolition of the olecranian reflex; exaggeration of the knee-jerk; no marked trophic cutaneous disorders, but smoothness of the skin of the upper extremities; slight swelling of the inferior extremities of the radius and ulna; modifications in the secretions of sweat, and reactions of degeneration in certain muscles. Among the most striking disturbances present in this case, and commonly in syringomyelia, were those of sensibility; and to these, in consequence of their importance, it may be worth while to refer a little more in detail.

At the commencement of the affection, in 1848, the patient had noticed that his sensibility was defective. He could even then be touched by hot liquids without feeling it. In 1888, fifty years later, he showed the same troubles of sensibility, and thought that they had neither increased nor diminished. Tactile sensibility was absolutely normal in the trunk, the face and limbs. Sensibility to pain was much impaired at the level of the hands, forearm, arm, shoulders, and the upper part of the trunk before and behind, as far as a circular line passed under the breasts. A very sharp prick of a pin was not perceived as painful, although it seemed to the patient as if some one had touched him. Analgesia was also present over the entire right half of the head. When a needle was drawn across from right to left he felt a sensation of pain as soon as it approached

the median line. There was no retardation of the transmission of sensation. Touching him with a bottle filled with ice on the entire skin of the face, neck and throat, the upper limbs, shoulders, arms, forearms, and hands, he scarcely felt a sensation of cold. The lower limbs, the entire abdomen, and trunk above the circular line passing under the breasts were normally sensitive to cold. The patient, however, felt no difference of temperature between 30° and 50° in the same region. In the left face only, sensibility to heat was preserved, and a difference in temperature between 35° and 44° clearly perceived. Applying a bottle of water at 85° to the extremity of his fingers, he felt after some seconds a lively sensation of heat, but over the rest of the cutaneous surface mentioned water at the same temperature held on the skin for any length of time did not produce any sensation of heat.

The duration of syringomyelia is very variable; often it remains practically stationary for a long period. The case reported by Déjerine is striking, among other things, in the history of its long duration. Active symptoms of the malady first showed themselves in this patient in 1848; in 1852 he was examined by Duchenne; and Louis and Briquet, among other lights of medicine, later discussed this interesting but unfortunate patient. The examination upon which Déjerine's communication is chiefly founded was made by this physician in January, 1888. The patient is still living, fifty years after pronounced symptoms were first observed.

The diagnosis of a typical case of syringomyelia may now be regarded as not particularly difficult; but the frequently irregular character of its symptoms may cause it to be confounded with other affections, as progressive muscular atrophy, anterior poliomyelitis, particularly in the adult, amyotrophic lateral, disseminated or posterior spinal sclerosis, bulbar paralysis, hypertrophic internal pachymeningitis, and some forms of myelitis and neuritis. Cases of syringomyelia have been reported as instances of irregular forms of these various diseases. In syringomyelia, indeed, these affections do exist both in pathology and symptoms; there may be, for instance, ascending degeneration of some parts of the cord, and descending of others; the gray horns may be the seat of destructive disease; nerves may atrophy, and not rarely the nuclei of the nerves of the bulb are attacked. The point to be remembered in making a differentiation of syringomyelia is, that a certain special combination and order of development of symptoms are characteristic of an affection whose essential pathology is abnormal holes in the spinal cord, and that the affections with which it is confused are usually the results of pressure or of extension of the original disease.

A curious point in diagnosis is the fact mentioned by Déjerine, that one of the most difficult affections to distinguish clearly from syringomyelia is anæsthetic leprosy, now generally regarded as a form of multiple neuritis, the clinical tableau presented by this disease being often, in brief, Aran Duchenne atrophy, analgesia, thermo-anæsthesia, and severe trophic affections. This error of diagnosis has been made in reported cases, and Déjerine regards it as almost inevitable in the absence of the prior manifestations and etiology of leprosy. Abnormal cavities in the cord sometimes exist without giving rise to active symptoms. Gowers says that this is particularly the case in young children.

The phenomena of syringomyelia have thrown some light on disputed problems in spinal localization. The clinical history of cases shows the frequent presence of trophic disorders of the bones, skin, nails, and bladder, as well as of the muscles. This is, so far as it goes, confirmatory of the localization of all trophic centres, except those for the muscles, in the central gray matter of the cord, and is corroborative, to a certain extent, of the view that the vesicular column of Clarke in the posterior horns is a region of vegetative centres; at any rate, in the central part of the gray matter of the cord, as stated by Starr, the vaso-motor and the trophic centres for the integument, finger-nails, and joints may be located. The existence of marked depression or absolute loss of the sensations of pain and temperature, with preservation of tactile sensibility, is corroborative of the difference in localization of the paths for the conduction of tactile sensibility and of those for pain and temperature. It shows the probable identity or close anatomical relations of the latter tracts, and the distinct anatomical situation of the former. The clinical and pathological observations on syringomyelia, however, are not necessarily confirmatory of the localization of the tracts for the transmission of pain and temperature in either the central gray matter or the interior portions of the posterior horns. They are more probably rather in the ascending lateral tracts, as placed by Gowers, but as the tracts for these sensations are constantly decussating, probably in the posterior commissure, the destruction of this decussation is

sufficient explanation of the changes in sensation produced by the disease.

From the very nature of the disease, treatment amounts to little or nothing. Hot baths have been used, and the various forms of treatment recommended for sclerosis, but with no permanent beneficial result.

The Annual Meeting of the American Surgical Association will be held in Washington, D. C., on May 14th, 15th, and 16th, under the Presidency of Dr. David W. Cheever, of Boston. The following papers are announced to be read: On Sarcoma of Tonsil, by Dr. David W. Cheever, of Boston. On Hernia—a Comparison of the Various Methods Adopted for Its Radical Cure; Inviting Discussion of their Respective Merits, by Dr. C. H. Mastin, of Mobile. On the Surgical Treatment of Gangrenous Hernia, by Dr. M. H. Richardson, of Boston. On the Early Diagnosis of Morbid Growths, by Dr. J. Collins Warren, of Boston. What Forms of Peritonitis Demand Treatment by Surgical Measures? by Dr. J. Ewing Mears, of Philadelphia. On Free Division of the Capsule of the Kidney, for the Relief of Nephralgia, by Dr. L. McLane Tiffany, of Baltimore. On Digital Dilatation of the Pylorus, by Dr. J. M. Barton, of Philadelphia. Contribution to the History of Gunshot Wounds of the Intestines, by Dr. Theo A. McGraw, of Detroit. On some Modifications in the Technique of Abdominal Surgery, Limiting the Use of the Ligature *En Masse*, by Dr. Lewis A. Stimson, of New York. A Successful Case of Nephrectomy for the Removal of Cancer of the Right Kidney, by Dr. John Homans, of Boston. Drainage and Drainage Tubes in their Application to the Treatment of Wounds, by Dr. Stephen H. Weeks, of Portland. Successful Ligation of the Primitive Carotids done Almost Simultaneously, in the Removal of Epithelial Cancer from the Base of the Tongue and Fauces, by Dr. L. C. Lane, of San Francisco. On Injuries to the Axillary Vessels, by Dr. Randolph Winslow, of Baltimore. On Acute Infectious Osteomyelitis and Periostitis, by Dr. Herman Mynter, of Buffalo.

The American Public Health Association will hold its next meeting in Brooklyn, N. Y., beginning October 22d. In addition to the regular scientific business, which usually consumes the entire time of the meeting, there will be a carefully organized annex for the exhibition of sanitary appliances and life-saving apparatus. It is also proposed to give one afternoon to an inspection of the quarantine stations of New York harbor. Dr. J. H. Raymond, of the Hoagland Laboratory, Brooklyn, is Chairman of the Local Committee.

Next Tuesday the Johns Hopkins Hospital, at Baltimore, will be formally opened with appropriate ceremonies, including addresses by President Gilman and Dr. J. S. Billings. The building is the finest of its kind on this continent, and it is doubtful if it has a superior anywhere, and neither pains nor expense have been spared to make it in all respects a model hospital, as will be seen by the full description which we give of it in another column.

At their recent commencements the degree of Doctor of Medicine was conferred on graduates as follows:

University of Pennsylvania	124
Starling Med. College, Columbus, O.	28
Columbus, O., Med. College	22
Kansas City Med. College	18
University of Kansas City	15
Gross Medical College, Denver	10
Niagara University, Buffalo	9
University of Denver	8
Colorado State University	1

The Faculty of the University of Vienna has conferred upon Dr. J. S. Billings the degree of Doctor of Medicine *causa honoris*.

On the occasion of his departure for his new field of labor at Johns Hopkins Hospital, Dr. Osler's medical friends in Philadelphia will give him this evening a farewell dinner at the Hotel Bellevue.

Dr. Robert Abbe, of New York, will read a paper before the Philadelphia County Medical Society on the 8th of May, on "Intestinal Anastomosis," giving the results of his experience, not only with Senn's plates, but of his own proposed substitute of catgut rings, which we noticed editorially in our issue of April 13th. The paper will be followed by a discussion.

Dr. Harvey Lindsly, one of the oldest physicians in Washington, died in that city on Sunday afternoon, at the age of eighty-five years, from exhaustion, due to old age.

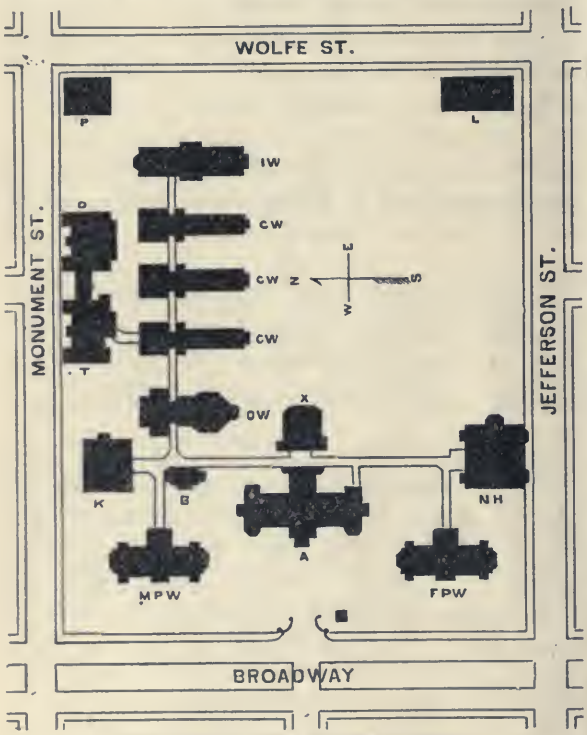
Dr. Lindsly was born in Morris County, N. J., January 11, 1804. He graduated at Princeton Col-

lege and took his degree in medicine at Washington in 1828 and then entered upon and continued in active practice in that city until 1872, when he retired. He was elected to the Presidency of the American Medical Association at its meeting in Washington in 1858. He was at one time Professor of Obstetrics in the National Medical College, and afterward Professor of the Theory and Practice of Medicine in the same school, and was for a long time President of the Board of Health of Washington City. He contributed a number of valuable papers to the *American Journal of Medical Sciences*, as well as to several magazines in general literature. He leaves a widow and four daughters.

SPECIAL ARTICLE.

THE JOHNS HOPKINS HOSPITAL OF BALTIMORE.

THE Johns Hopkins Hospital will be formally opened next Tuesday. The grounds of the Hospital include four entire blocks, containing about fourteen acres of ground, having a frontage on Broadway of 709 feet and extending back 856 feet. The buildings are seventeen in number and the roof area covers over four acres.



Block Plan of Johns Hopkins Hospital.

A.—Administration Building.	O.W.—Octagon Ward.
X.—Apothecary's Building.	C.W.—Common Ward.
M.P.W.—Male Pay-ward.	I.W.—Isolating Ward.
F.P.W.—Female Pay-ward.	T.—Amphitheatre.
N.H.—Nurses' Home.	D.—Dispensary.
K.—Kitchen.	P.—Pathological Building.
B.—Bath House.	L.—Laundry.

THE DESIGN OF THE HOSPITAL.

The Hospital has been building about thirteen years, and shares with the University the distinction of being a monument to the philanthropy and generosity of the late Johns Hopkins. The endowment is over $3,000,000, invested in substantial interest-paying securities, and only the income has been used in the construction of the buildings. With the exception of the Laundry, Autopsy Building, Chapel and Green-house, all the buildings which are of brick with trimmings of dark blue stone, are connected by covered corridors one story high. The top of this corridor forms an open terrace-walk on a level with the ward floors. The objects of the hospital, as indicated by its founder, were threefold: The proper care of the indigent sick; the education of trained nurses and incidentally of physicians; the promotion of discovery in medical science and the promulgation of the same for the general good. To these might also be added the outdoor relief feature, on which the founder laid not a little stress, and which will be among the first to which the officers of the institution will bend their energies in order to popularize the Hospital.

The medical school will not be a part of the Hospital, but of the University, though the two will work in harmony, and the students of this department will receive their practical experience within its walls.

THE GENERAL PLAN.

The first problem which engaged the attention of the trustees was the selection of a general system on which the buildings were to be erected. It is generally conceded that a village of cottages, with commodious arrangements, large, airy apartments given up to the sick, with an adequate supply of nurses, and of medical and surgical skill, would show a smaller average mortality than the more crowded ward system, just as villages are, other things being equal, more healthy than large towns. But this plan is hardly practicable for large cities, though the one-story barrack system, destructible in whole or part, which was so successfully used in the civil war, resembles it in many of its excellences. The barrack system was not found to give all the advantages that could be gained from what is known as the pavilion system employed in the construction of the present institution. The greatest objection made against placing one ward above another is based on the increased facility for the transmission of foul, contaminated air from one floor to another, and the impossibility of giving as good ventilation to the lower as to the upper floors. The plan, therefore, finally adopted in constructing this building is generally to have but one floor in a pavilion devoted to a ward.

All the pavilions have a basement nine feet high, raised above ground, laid with a granolithic flooring, containing only the heating and ventilating apparatus, and connected directly with a closed corridor ten feet wide, which communicates directly with all save two buildings, the dead-house and laundry. With the exception of the pay wards, none of the pavilions can be entered from the closed corridor except by first passing through the open air. Thus do all the floors on which the sick wards are situated communicate directly with a long, flat terraced roof on the top of the corridors, surrounded by

railings, which serves for exercise of the patients and their general communication in fair weather, and likewise affords a free circulation of air all around the wards left unobstructed on what is termed the first floor of the system.

It has been the plan of the founder to give each patient in the hospital 100 feet of floor space, in accordance with the recognized necessity of providing ample breathing space, and avoiding all the dangers common to hospitals, and to provide each bed with eight feet of wall space. It is the expressed will of the founder that not more than 400 sick persons be accommodated at any one time in the institution, and in the sixteen buildings thus far constructed the whole number of beds provided in the wards is not more than 224, not including seven in the accident wards, only to be temporarily occupied by patients undergoing treatment in that building. In the pay and isolating wards separate rooms are provided for the patients, but in the three kinds of free pavilions, the common octagon wards, beds are arranged in one room, though there are in each four separated rooms for certain cases, where special modifications of light and temperature are required.

THE COMMON WARDS.

The common wards are rectangular in form, ninety-one feet long by thirty-two feet broad, with twelve beds arranged on either side of its length, at least one window being placed between each two. For the octagonal ward system it is claimed that the beds being placed at exactly equal distances from each other and from the fireplaces and ventilators, that the difficulty of unequal heating and stagnant air spaces is avoided, but moreover that more sides of the ward are entirely free for the largest amount of sunlight and heat than by any other form. Some one part of the room is always lit up by the direct rays of the sun during some part of the day. One somewhat serious objection raised against this system is that it does not allow the attendants a fair view of every patient at the same time, as a large ventilating shaft occupies the centre of the room. But this has to be waived in consideration of its supposed greater value. It has also been urged that the sick-room does not require the watching of a penal institution. Each of the two octagonal wards will have two stories.

THE ISOLATING WARD.

The isolating ward is for the treatment of patients suffering from contagious diseases. Each person is assigned a separate apartment, whose ventilation is made through an individual shaft.

HEATING AND VENTILATION.

The problem of heating is inseparably connected with that of ventilation in hospitals, and the two were considered together in maturing the plans. The open fireplace has a conspicuous place in all the buildings where a room occupied by not more than two persons is to be heated, because of the especially agreeable effects of direct radiant heat and the cheerful appearance such fires give, and the ready means they afford of providing a rapid exit for the effete organic matter of the room. Such heating is, however, very wasteful in proportion to the heat thrown out, and will not answer for wards because of the unequal heating of objects situated at varying distances from it; they also increase labor, and are dangerous in that smoke and obnoxious gases are at any time likely to be driven from them into the wards. In the Johns Hopkins Hospital one of these open hearths is placed in every individual sick room to furnish ventilation, but to be kindled only in case the other means of heating fail, or before the large furnaces have been lit for the season. All the advantages furnished by the open grate can be obtained from the use of hot water under low pressure in coils. A very simple device, an automatic switch-damper, is applied in numerous parts of each sick room, as well as in nearly all the rooms of the hospital, to admit fresh air. All that is seen of the arrangement is a slightly altered form of a heat register, placed in the wall not far from the floor, in especially great number in the wards. The apparatus for mixing the air is placed in the basement. A certain well-defined volume of air is constantly entering through this register, an amount which the attendants cannot control, but which has been measured by experts, so as, with other arrangements in the wards, to cause a complete renewal of the air every fifteen or twenty minutes. When on damp or sultry days the air is sluggish in its upward movements a fan arrangement in the basement of each building forces it through the switch-damper.

It is proposed to place in the medical director's room in the Administration Building an electrical device called a "telemeter," by which he can see at a glance the temperature of various parts of each ward in the entire hospital, and if the heat be too great or too little he can order its modulation by decreasing or increasing the amount of air in a given switch-damper that is to pass around the coils.

For the removal of the vitiated gases there are several devices employed in the same ward, including, besides the fireplace heaters, a coil of hot-water pipes near the top of the shaft, which creates a constant upward current of some little velocity from the rooms below. In the central hall of each pavilion there is in addition an enormous shaft for ventilating each entire floor. At night when the products of combustion of the gas jets are to be removed, in the morning when all the wards are to be thoroughly flushed, and in summer that this dead residuum may be removed, ventilators at the top of the room are opened. The pay wards have individual rooms, with all the features of switch-damper ventilation below and above. In the Nurses' Home is exhibited an anemometer to measure the velocity of the current upward into the ventilating shaft, which rapid egress is necessary to replenish the pure air. The attics above the wards have also in every instance the best of ventilation.

PLUMBING.

Throughout all the buildings the pipes are exposed, so that at a moment's notice they can be examined and the source of any difficulty remedied at once. No sewer is allowed to pass directly under any building, for the waste water drains directly through special pipes down Jefferson Street into the Harford Run, and fecal matter flows through a large outlet, which is to be frequently flushed with large quantities of fresh water, into an immense well under the Nurses' Home, which is ventilated by a stack one hundred and twenty feet high.

No mouldings are allowed on the furniture or woodwork in any of the buildings lest shrinkage cause cracks

and fissures for the lodgement of disease germs. The walls are all joined in segments of circles and not in right angles, the washboard joining the floor, and the wall is similarly curved that a damp rag may allow no small fraction of an inch to go uncleansed. For a similar reason all the fittings and joints are tight, and the furniture is not carved to any extent. The floors are of well-seasoned hard yellow pine, well oiled to prevent indentation, separation at junctures, and the absorption by the wood of anything that may be spilt upon it. Rugs and druggets will not be allowed on the floors to act as sponges for imbibing and retaining bacteria of disease. In some cases, for similar reasons, granolithic floors are used where there is likely to be slopping, and soapstone walls where cracks would be likely to occur in the ordinarily plastered walls, as in the kitchen.

Extreme cleanliness is to be insisted upon in the attendants' rooms and storage-rooms. No closets with doors or drawers are furnished, that nothing soiled or improperly cleansed may be concealed.

THE OCTAGON WARDS.

The common octagon wards are placed in the southern part of each building to procure as much invigorating sunlight as possible, while at the far end (south) of each such ward is a sun-bath, where the patients may be exposed to the beneficent rays. Still the number of windows in each ward is not unnecessarily increased, for that would result in producing ill-comfort in the patients without corresponding benefit. Four separate rooms are provided in each ward, where special modifications of light and temperature desirable in the treatment of the case may be provided. In case the disease prove a dangerous one, of course the ward is emptied and the bedding and clothes thoroughly disinfected and purified, or even burned. It is hoped that one bed in each ward may always be left unoccupied, and even, if possible, one entire ward left vacated. These buildings are two stories high, with basement.

ADMINISTRATION BUILDING.

The administration building is three stories high; the upper stories are divided into rooms for resident medical officers and students. The medical director's room will contain, besides the telemeter, annunciators, and speaking-tubes to all the buildings, a pneumatic clock, in order to provide precisely the same time in all parts of the building, to regulate exactly the administering of medicines and baths. The board room is provided with the original set of furniture, books, and fittings of Johns Hopkins's library. The resident physicians and resident students' separate bed and dining-rooms and reading-rooms are in this building. A superabundance of bath-rooms is provided, in order to induce very frequent cleansing and change of linen on the part of the medical attendants. Separated from the corridor and administration building by an open-air bridge, in order to keep out the disagreeable odors from the living rooms, is the apothecaries' building, three stories high. The indoor dispensary is located here. The two upper floors are occupied with rooms for female servants.

BATH HOUSE.

In another annex are the baths of the hospital, where, if possible, the patients are induced to come. If unable to leave their beds, a complete portable bathtub is brought to the bedside. Turkish, Russian, mercury, vapor, electric, needle, plunge, and other bath-rooms are provided here for all who have them prescribed for them. Separate bath buildings are provided for males and females.

THE KITCHEN.

This building is three stories high besides the cellar and boiler vaults. The upper story contains dining-rooms for employees and sleeping-rooms for cooks. The entrance to the kitchen is by the closed corridor, and, therefore, on the floor below that to the sick wards, into which its odors cannot penetrate. All modern conveniences of steam apparatus are provided for cooking, and large hoods for carying off the vapors to the flues. All the non-commissioned officers dine here. It is provided that all the garbage and waste must be at once carried out into the open air and dumped into a shute to be carried away. All the viands for the patients are carried in felt boxes, to be kept hot by this simple device, to the wards some distance off. In each ward there is, however, a nurses' kitchen, with steam tables to prepare any simple dish that may be required for an emergency or during the night.

THE BOILER-HOUSE.

The boiler-house is beneath the surface of Monument street, and is reached from the sub-cellar of the kitchen building. It contains four hot-water and three steam boilers, the last communicating directly through a tunnel to the amphitheatre and dispensary building, which they heat. They also provide steam for the boilers of the kitchen and steaming tables throughout the buildings. The hot-water boilers heat the switch-dampers of all the buildings and tops of the ventilating shafts. Two enormous filters purify all the water that enters the institution, even that which goes to the boilers. Pumps in this boiler-house raise filtered water to tanks capable of holding 100,000 gallons in the top of the administration building. This is held as a reserve in case of an accident to the water main feeding the institution, or the breaking down of the city's reservoirs.

THE PAY WARDS.

The male pay ward is at the corner of Monument Street and Broadway. The walls are neatly painted in oil, and the furnishings are only a little better than in the common wards. An iron bedstead, with brass knobs, three chairs, a wardrobe, washstand and bureau, almost the same as in the officers' rooms, constitute the furniture. The building may be entered from the connecting corridor, but the patients' rooms cannot be reached save by passing through the central hall, where is the enormous ventilating shaft. A noticeable feature everywhere is the absence of patients' elevators, for it is believed that more comfort will be insured by raising the sick on stretchers up broad stairs with an easy rise than by subjecting them to the shock of sudden stoppages on the elevator. Fear of the rise of contaminated air through the elevator hatches also assisted in deciding on this feature. The female pay ward, at the other end of Broadway, is rapidly approaching completion, and will be ready for occupancy by the end of the year.

THE ISOLATING WARDS.

The isolating wards are for patients suffering with contagious diseases, and can only be entered by double doors from a long, high central corridor. Three rooms have the Winans perforated floor for producing an increased heat for special cases.

THE AMPHITHEATRE.

The amphitheatre building, where surgical operations will be conducted, contains seats for 200 students. Lecture-rooms, accident reception-room for patients, consulting-room, etherizing-room for preparation of patients, wards, nurses' apartments, etc., find their appropriate place in this building. There are also well-equipped rooms in which patients can recover from the effects of their operation. A movable crane, from which is suspended a strap and stirrup, is a device by which the patient can move himself when restless, from one side of the bed to another. This may be adopted in the other wards.

OUTDOOR DISPENSARY.

An adjoining building is for the outdoor dispensary. It contains a very large central waiting-room for the beneficiaries, surrounded by eleven physicians' and surgeons' rooms; there is also an apothecary's dispensing table. Baths, water-closets, etc. complete the structure.

THE NURSES' HOME.

The nurses' home fronts on Jefferson Street, and is four stories in height. It stands some distance from the end of the closed corridor, thus necessitating a passage through the open air of these attendants in going to and from the wards, and securing the home immunity from contagion. Parlors and reception-rooms, library and reading-rooms, a main hall, eight sleeping apartments for nurses, are on the first floor. Forty-four sleeping rooms for nurse students, one for each, are on the second and third floors, with all necessary conveniences. It also contains a training kitchen, a dining-room for the nurses, and a lecture-room.

THE LAUNDRY.

The laundry, a one-story building, completely isolated from the rest of the group, stands at the corner of Jefferson and Wolfe Streets, and plays an important part in the institution. Its disagreeable vapors render its complete isolation necessary. Tubs, boilers, rotary washing machines, centrifugal wringing apparatus, and other modern devices for laundrying clothes are provided. The disinfecting chamber is in the basement of this building. The roof is flat, and is to be used for sunning the clothes.

THE DEAD-HOUSE.

The autopsy building, near the corner of Monument and Wolfe Streets, now used by the pathological laboratory of the University, also stands isolated for an obvious good cause. It contains on its first floor an amphitheatre, where fifty students standing, after the plan adopted in Berlin and Strasburg, can view an autopsy. There is also an air-tight morgue-room, a waiting-room for funerals, and a pathological laboratory, all on the first floor. The upper story contains rooms for histological research and for photomicrography and a small museum. The basement will probably have a small crematorium in which to consume refuse animal matter.

GENERAL OBSERVATIONS.

Three more common wards, an octagonal ward and an isolating ward, all on the south side, a chapel and a green-house remain to be constructed. There will, moreover, be extensive gardens.

For the above description we are largely indebted to the columns of the *Baltimore Sun*.

REVIEWS.

THE PATHOLOGY, CLINICAL HISTORY, AND DIAGNOSIS OF AFFECTIONS OF THE MEDIASTINUM OTHER THAN THOSE OF THE HEART AND AORTA: Being an essay to which was awarded the Fothergillian medal of the Medical Society of London, March, 1888. By HOBART AMORY HARE, B.Sc., M.D. (Univ. of Pa.), Demonstrator of Therapeutics and Instructor in Physical Diagnosis in the University of Pennsylvania, etc. 8vo., pp. 130. Philadelphia: P. Blakiston, Son & Co., 1889.

DR. HARE in writing this book on mediastinal disease has well earned the Fothergillian medal, for he has rendered good service to the medical profession not only in calling attention to a subject of vast importance, but also for resuscitating it from an oblivion into which it was driven by undeserved neglect. He gives here the tabulated record of five hundred and twenty cases of mediastinal disease other than those of the heart and aorta, distributed as follows: Cancer, 134; sarcoma, 98; abscess, 115; non-suppurative inflammation, 16; lymphoma, 21; fibroma, 7; hæmatoma, 6; dermoid cysts, 11; hydatid cysts, 8; various other diseases, 104; and nearly every one of these classes is discussed in relation to its pathology, etiology, diagnosis, and treatment.

The study of mediastinal disease, to say the least, is of as much importance as that of any other affection within the thoracic cavity, partly because it is of more difficult recognition, and partly because it bears a most essential relation to diseases of neighboring organs, notably to those of the respiratory passages and the heart. There can be no doubt that many diseases of the larynx, lungs, and heart, which are commonly attributed to local causes in these organs, will find a solution of their origin in the pressure of a mediastinal lymphoma, fibroma, etc., on the recurrent laryngeal or on the pneumogastric nerves, the pulmonary, or on the cardiac plexuses. This is especially true of such affections which invade the posterior mediastinal space.

We congratulate the author on the happy selection of his subject, and on the faithful manner in which he worked it out, as well as on the intelligent appreciation which it is receiving from the profession.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON NEUROLOGY.

LANDON CARTER GRAY, M.D., CHAIRMAN.

Stated Meeting, April 12, 1889.

NERVOUS SYMPTOMS ARISING FROM OVARIAN DISEASE, AND THEIR TREATMENT.

DR. CHARLES L. DANA, in opening a discussion on this subject, said that in these cases the gynecologist had

the advantage over the neurologist in the fact that he not only observed the symptoms but also saw the ovaries themselves. The term ovarian irritation he took to imply an irritating organ, and not an irritated organ, as in cardiac irritation, for instance, when the heart was irritated by reflex nervous influences. The question at issue must be confined to ovarian irritation, if there was such a thing. The designation was hardly correct, however, since the uterus and the tubes were appendages of the ovaries and might share in the trouble.

Then, a point arises as to the anatomical and physiological basis of ovarian irritation. In many cases there might not be any anatomical change in the organ, but merely a physiological or functional one. By far the most frequent change present, however, was chronic hyperæmia or chronic ovaritis. This was so important a condition that we might, for the most part, dismiss from consideration the parenchymatous changes resulting in the formation of cysts, etc. It was a well-recognized fact that such changes were not accompanied, as a rule, by the reflex nervous symptoms that often characterized the condition of chronic hyperæmia or chronic ovaritis.

To the latter it had been customary to refer a great variety of nervous affections, such as vaso-motor disorders, cardiac disorders, hysteria, epilepsy, mania, melancholia, chorea, neuralgic states, spinal irritation, sciatica, migraine, and irritability of the bladder and rectum. The question, therefore, arises, How far are such conditions really attributable to the ovaries? In his own opinion, he said, if the ovaries were anatomically healthy they could not produce these reflex troubles, and chronic ovarian hyperæmia and chronic ovaritis could not produce any of the severe constitutional neuroses alone. He also believed that the latter had much less effect in the causation of such troubles than was generally supposed, and that the removal of the ovaries did not, as a rule, remove grave neuroses, such as chorea, epilepsy, melancholia, and intractable neuralgias. About one-half of such troubles usually occurred in women whose ovaries were perfectly healthy; while in those whose ovaries were really seriously diseased none of these neurotic symptoms manifested themselves.

Battey, of Georgia, had discovered a peculiar form of epilepsy which he designated as ovarian epilepsy, and had reported ten cases of it in which he removed the ovaries, with the result of a cure in eighty per cent. of the cases. It was extremely probable, however, that the greater number of these cases were simply instances of convulsive hysteria, which was likely to get well under almost any course of treatment. It was certainly a fact that no such disease as ovarian epilepsy was recognized by neurologists, and neither Gowers nor any other author who had written systematic treatises on epilepsy made any mention of it. Of so-called ovarian mania, Battey had reported four cases, with one cure, and Goodell five cases, with four cures, from removal of the ovaries. They were, no doubt, instances of hysterical insania, and according to Clouston, the proportion of cures in this affection under any treatment amounted to sixty per cent.

As the greater number of such cases were hysterical in character, the percentage of cures by operative procedure did not present a very brilliant result, and it was, moreover, a fact that in a very large number of hysterical women there was no appreciable disease of the ovaries or uterus whatever. In hysteria the mind of the patient was apt to become specially directed to certain points in the system, and it was perfectly natural that many patients should come to regard the pelvic organs as the source of their troubles; so that the removal of the ovaries would at least have a very strong moral effect. On the whole, therefore, it was his opinion that the ovaries by themselves occupy a very subordinate place in the production of neuroses. Although an inflamed ovary might cause considerable neurotic trouble, the same might be true of any other process of disease in the system, and hysteria was essentially a brain affection.

DR. W. GILL WYLIE said that he was substantially in accord with the main points advanced by Dr. Dana. He was inclined to think that the influence of the ovaries in producing reflex nervous symptoms has been overrated. Without doubt an inflamed or diseased ovary will cause marked reflex symptoms, but much depends upon the condition and inherited tendencies of the whole nervous system of the individual. What he meant, he said, was this: that the same disease of the ovary in different women will cause very different symptoms. In a delicate, imperfectly developed woman a diseased ovary may make a confirmed invalid and cause numerous reflex symptoms, while a well-developed woman, with a normal, well-balanced nervous system, may carry about a diseased ovary without ever being confined to her room, and not have any definite reflex symptoms.

The imperfectly developed woman is almost certain to have an imperfectly developed uterus and ovaries, and is, therefore, much more liable to have uterine and ovarian disease than the average woman, and it must not be forgotten that imperfectly developed women are also prone to have a diseased or abnormal nervous system. He was convinced that it is often very difficult to separate the symptoms actually caused by disease of the ovaries from those due to an abnormal or imperfectly developed nervous organism. He has also found that chronic uterine or ovarian disease is nearly always complicated with a disease or at least an abnormal condition of the rectum or colon, and he had made some very brilliant cures of cases of supposed uterine or ovarian disease by dilating the anus and removing the reflex disturbances caused by an anal pressure. In other cases he has found the colon dilated and sacculated (being loaded with round, hard scybalæ), and this condition has been at the bottom of a case of melancholia or hypochondriasis supposed to be due to disease of the left ovary.

An inflamed ovary will cause reflex symptoms, especially for some days preceding menstruation, on account of the increased vascular tension existing at that time. An ovary imprisoned by a firm peritoneal exudation will cause unusual reflex symptoms and local pain, due to the resistance offered to the maturing ovum swelling under the peritoneal adhesions, or to the occluded Fallopian tube and abnormal ovulation resulting in cystic degeneration and the swelling cysts stretching the peritoneal adhesions. He has seen several cases where the reflex symptoms amounted almost to insanity, caused, as was shown when the abdomen was opened, by a thickening and hardening of the ovarian tissue, resulting in the production of a very great increase of the fibroid tissue, and, in some cases, of small nodules or fibroid

tumors on or in the ovary. In this class of cases the patients suffer intense local pain, and just before menstruation become very irritable and excitable to an extreme degree.

As to treatment, in all cases where the reflex symptoms or the nervous symptoms are marked, he invariably gets the advice of a neurologist before resorting to active treatment, so as to avoid the mistake of exciting and bringing to a climax some commencing or undeveloped disease of the nervous system. Then, before attempting to reach a positive diagnosis he makes it a rule to keep the patient for some weeks under his own observation, unless the symptoms demand immediate surgical interference. Also, before deciding whether an ovary is enlarged or decreased, he thinks it wise to insist upon an examination of the patient under ether. If one can plainly make out disease of the ovaries, indicated by fixation or enlargement—that is, permanent enlargement, the organ being as large as a small hen's egg—and if the symptoms are not relieved or rendered latent by improving the general health of the patient, or by the use of means to improve the local circulation, such as counter-irritants, etc., then laparotomy should be considered, if the subjective symptoms warrant it.

But unless actual physical disease can be plainly made out by local examination under ether, he would not advise laparotomy until every other means, in the hands of several different physicians, have been faithfully tried. He said he was sure that in many cases where the ovaries have been removed, if the influence of imperfect development had been recognized, and a simple stimulating local treatment, combined with careful attention to improving the general condition, had been properly carried out and persisted in, the patients would have saved their ovaries and regained their health as completely, if not more completely, as by castration. In these cases he said he was accustomed to apply cotton pledgets soaked in a solution of boro-glyceride and glycerine twice a week, to dilate the uterine canal once a week between the menstrual periods, and make a stimulating intra-uterine application. In some cases he applied electricity, and in others put in a drainage plug for a week every three or four months, etc.

When there was distinct nervous disease he did not think much could be accomplished by the removal of the ovaries. Personally he had performed the operation in but five cases, and only one of the patients was cured, while three were not at all benefited.

DR. B. SACHS said it would seem that both neurologists and gynecologists were of one opinion in regard to this matter. At the present day he did not suppose that any of those present would think of removing the ovaries in cases of chronic neurosis, such as epilepsy or chorea. He referred to cases of epilepsy in which this was done, and said that even in a case of hystero-epilepsy which had come under his observation the ovaries were found to be perfectly normal after removal. The question that all would like to have determined was: What effect has disease of the ovaries on chronic hysteria, and is the removal of these organs justifiable in this condition or not? As far as he could judge, if there was considerable enlargement of the organs, or they were in a state of chronic inflammation, this would seem to afford ground for their removal. But in the majority of cases of hysteria such conditions did not exist, and the question, therefore, arose: Are we justified in removing a normal ovary? Where there was ovarian hyperæsthesia there was likely to be a general hyperæsthetic condition of the system, and by the extirpation of the ovaries we simply removed one focus of trouble, without in any way affecting the others that remained.

He should like to see statistics furnished which would show in cases of true hysteria how many were cured by the removal of the ovaries when diseased, and how many by the removal of the ovaries when normal. His own experience went to show that after the removal of the ovaries the symptoms always return after a longer or shorter period of time.

DR. M. P. JACOBI spoke of the necessity of distinguishing between those cases which have their origin in the ovarian region and those which arose in simply an hallucination of the brain, but referred by the patient to the pelvic organs. In the constitutional hysteria in which the most pronounced symptoms were developed, the patients were, as a rule, entirely free from ovarian or uterine disease, and in such cases any effect that operative interference could have would be due simply to the mental impression made upon the patient. It was her opinion that ovaritis never occurs as a primary disease, but invariably originates in a fundal endometritis. On this account she thought it exceedingly important to distinguish between the symptoms due to ovarian and those due to uterine disease, and to bear in mind the fact that disease of the uterus and the ovaries often existed together.

She believed that the symptoms of chronic nausea and chronic tympanites were especially characteristic of lesions of the utero-ovarian nerve. All the filaments of the ovarian nerves had been traced to terminations in the bloodvessels, and hence, primarily, there would be vaso-motor disturbances. After some remarks on the influence of the sympathetic system, she said that the English authorities especially had long recognized ovarian dyspepsia, which was atonic in character, as among the remote effects, and in the treatment of this condition Tait had applied strong counter-irritation to the region of the ovary with success. In conclusion, she related the case of a patient suffering from very severe ovarian dyspepsia who was completely relieved by the application of a strong current of electricity, one electrode being placed over the lumbar vertebræ and the other over the ovarian region in the hypogastrium.

DR. W. R. BIRDSALL said that it seemed to him that the conclusion expressed by Dr. Wylie in regard to operative interference was correct, and he fully agreed with him that the removal of the ovaries was not called for unless active disease of these organs could be demonstrated, except in special cases where all other means of treatment had been faithfully and persistently tried. But even in such cases the results thus far accomplished had not been such as to encourage the resort to operation, and he believed that the more evidence accumulated the less frequently would the ovaries be removed. There was a class of neuroses in which, if one chain of evidence of symptoms was relieved by a special course of treatment, trouble would sooner or later break out in another part of the system. Thus, he knew of patients who had successively had their nasal septa straightened, their ocular muscles cut, their uteri cured of malpositions, and their bladders and rectums relieved of irritation. All these methods of treatment had improved the

condition of the patient for the time being, but scarcely had one set of symptoms been controlled by the measures employed when a new set would become developed. At the same time, he believed that whenever there was distinct local disease the removal or relief of this source of irritation was of decided benefit; but he thought that the mistake was too often made of considering these local lesions as the primary cause of trouble, which was really to be referred to the general neurotic condition of the patient.

He agreed with Dr. Jacobi that the uterine disease was frequently associated with that of the ovaries, and in this connection he mentioned the case of a patient, a married woman, who at times was subject to a sinking sensation amounting almost to unconsciousness, which she referred to the ovarian region, the stomach, and down the thigh. On making a physical examination he found anteversion of the uterus and prolapse of the ovaries. As soon as the displaced ovary was touched, she complained of the sinking sensation mentioned, and he felt convinced that a large part of the patient's nervous trouble was due to the abnormal local condition present. He, therefore, called in a gynecologist, who, after replacing the uterus put in a pessary, which also had the effect of keeping the ovary up, and after this she had no further trouble. On the other hand, he had seen many instances in which attacks of this kind were not relieved by local treatment.

In cases in which the ovaries are bound down by adhesions the pain is often extreme and the nervous symptoms quite marked. There is another class of cases, of which he had not seen more than two or three instances, where the pain was as persistent after the removal of the ovaries as before; and he believed it to be a fact that the removal of a painful organ does not necessarily cure a neuralgic pain long established. This was shown by the not infrequent failure of resection of nerves to afford relief in chronic neuralgias; and hence, if neuritis was the cause of the trouble, the removal of the ovary might not effect a cure. There might indeed already be present disease of cerebral origin. In conclusion, he said that he believed there were two extremes to this question. No doubt many ovaries had been removed which had better been left; but at the same time he thought that in the future cases would sometimes occur in which the removal of the ovaries would be attended with benefit.

DR. H. T. HANKS said that as a practical gynecologist he would take the standpoint of Dr. Wylie. As he had stated, there were some conditions of the ovary which could be relieved by patient and long-continued local treatment; and electricity was often very beneficial in this connection. When the ovaries were bound down by adhesions ovulation took place with the greatest difficulty, and much suffering resulted to the patient; and in cases where removal of the organs was not deemed advisable great relief could often be afforded by the application of electricity just previous to the menstrual period. If we were able to determine just what condition was present, great relief could sometimes be secured by very simple means. Having referred to one or two illustrative cases, he said that in view of the very large number of laparotomies which had now been performed, he thought gynecologists ought to be able to come to a positive conclusion in almost every case presented to them whether the ovaries ought to be removed or not. When a decidedly diseased ovary which was hypertrophied or prolapsed was met with, and this was attended by the symptoms usually characteristic of such a condition, he thought that the operation should be performed.

DR. H. J. BOLDT desired to take the same standpoint as most of the other speakers, and he related the case of a bed-ridden patient whose ovaries he removed in the hope that she would improve. She did improve for a time after the operation; but later all the symptoms came back as bad as before. In hystero-epilepsy he thought proper cases for operation would be those in which, in spite of all other treatment, the attacks continued to increase in frequency. In two cases of his own of this kind, however, the removal of the ovaries was not attended with success. There was improvement for a time, and then the attacks returned as bad as ever. His experience had, therefore, led him to the opinion that in any case where the ovaries appear to be normal, no matter how severe the nervous symptoms may be, the removal of the ovaries will not afford relief. On the other hand, in cases where the ovaries were bound down by firm adhesions, such as those referred to by Dr. Birdsall, he would expect great benefit to be derived from the operation. In some cases of nervous trouble the symptoms were decidedly worse after operation than they had been before, and he thought that the ovaries should never be removed until all other means of treatment had been exhausted. In addition to electricity, massage often proved of very great benefit, and he thought this means was not resorted to as frequently as it ought to be.

DR. M. D. FIELD said that his experience as an examiner in lunacy led him to the belief that many women who have had their ovaries removed are in our insane asylums to-day. A considerable number of the cases which he had seen had come directly from Bellevue Hospital, where the operation had been performed. He had no doubt, however, that many of them had a predisposition to insanity before the removal of their ovaries, and that the shock of the operation or the effect of etherization brought on the mental trouble.

DR. GRAY said it seemed to him that the whole question of reflex nervous symptoms was intimately connected with the growth of the various specialties in the last few years, and that unless specialists had some competent knowledge of the nervous system and its pathology they were apt to get into all sorts of vagaries. If one desired to relieve an epilepsy, for instance, it was necessary that he should understand what epilepsy does when left to itself. Almost any kind of treatment would often do good for a time in this affection; and the same was true of hystero-epilepsy and hysteria. The trouble was that the specialists did not study the intrinsic history of the disease. Reflex disturbances coming from the viscera were almost always suspicious. The involuntary nervous system constituted an element of great importance, as Dr. Jacobi had pointed out, and it was necessary to understand clearly the difference between the voluntary and the involuntary nervous systems. While, as a rule, he was very sceptical about the cure of epilepsy by gynecological operations, he had seen two cases in which the relief of a vaginitis which was present relieved the epilepsy.

DR. WYLIE said that where no ovarian disease could

be detected he would operate only in extreme cases in which the patients were bed-ridden and all other means had failed to give relief. As a rule, he would remove the ovaries only when these organs were clearly demonstrated to be seriously diseased. As to the cases referred to by Dr. Field, the patients were no doubt exceedingly nervous to begin with. In one case which Dr. Dana had seen in consultation, the patient was already insane before he operated. He removed the tubes and ovaries on account of the presence of a well marked pyosalpinx, and the operation was followed by considerable amelioration in the condition of the patient. If insanity were so common a result of removal of the ovaries as Dr. Field would seem to intimate, he thought the cases should all be published with complete histories.

DR. DANA said that the opinion which he had entertained up to the present occasion, as derived from recent works on gynecology and current medical literature, was that gynecologists were accustomed to resort very frequently to removal of the ovaries for the relief of these nervous troubles; and he was very glad to find that the sentiments expressed in the discussion to-night were adverse to frequent operative interference, and, therefore, considerably in advance of the views held of late by many in the profession, as expressed in text-books and medical journals.

SECTION ON THEORY AND PRACTICE OF MEDICINE.

R. C. M. PAGE, M.D., IN THE CHAIR.

Stated Meeting, April 16, 1889.

DR. F. W. JACKSON read a paper on

THE SIGNIFICANCE OF THE CREPITANT RALE.

Not long since, he said, a fellow-practitioner had remarked to him in regard to the actual significance of the crepitant râle that it only means pneumonia. This was the position practically taken by the late Dr. Austin Flint, who in his *Manual of Auscultation and Percussion*, said: "The crepitant râle is the diagnostic sign of pneumonia. It very rarely occurs in any other pathological condition. Of all respiratory signs this is the most entitled to be called pathognomonic." Dr. Jackson contended that this sign alone is not diagnostic of pneumonia, and that it is simply a sign of pleuritic changes or inflammation, and perhaps of other conditions of the lung as well.

Nearly all writers practically followed the teachings of Laennec or Walshe. He quoted the description of Laennec, in which he speaks of the crepitant râle as occurring in the pulmonary tissue and carrying with it a well-marked sensation of moisture. On the other hand, Walshe had said: "Dryness is one of the best marked acoustic properties of true crepitation; the sensation is not that of bubbles bursting, but rather that of a delicate tissue undergoing minutest ruptures with a crackling noise at many points simultaneously."

As regards the mechanism of the crepitant râle the three leading theories were:

(1) That of Laennec, according to which it is due to the bursting of fine bubbles of air through a viscid fluid in the air vesicles or alveolar passages of the lung.

(2) That favored by Walshe, that the sound is due to forcible distention of the air vesicles, whose walls are rendered stiff by a glutinous exudation.

(3) That advocated by Dr. James R. Leaming, that the sound is produced by the rubbing together of the two surfaces of an inflamed pleura which is coated with fibrin.

All the older writers and most of the modern European ones favored the intra-pulmonary origin of the râle, while many of the more recent writers and teachers, in New York, at least, ascribed it to pleuritic exudation. Nearly all modern writers agreed, however, that it is not pathognomonic of pneumonia.

The exact study of the phenomena of râles demands that the sound shall have been heard at the shortest possible period before death, its position on the chest wall and acoustic characters carefully noted, and then that the lungs and pleura be subjected to a critical post-mortem examination with reference to these data. In the cases thus far studied in this way by him he has found that where a fine râle was heard on inspiration some pleural changes were commonly noted at or near the site of the râle, but not always of such a character as to be convincing. In an extended clinical experience, a point of view from which he could speak with more confidence, he said that he had noted some differences from the rules laid down in the text-books. Thus, the crepitant râle was not always persistent, (sometimes disappearing and reappearing alternately in a short space of time), and the extremely fine, extremely dry sound occurring in a great number of crackles was found to be a rare form of crepitant râle, whether associated with pneumonia or any other pathological condition. Of the brilliant, explosive, abundantly crackling type of râle, that which is slightly moist and a trifle more coarse in quality seemed to him to be far more common, and he has frequently observed it in acute lobar pneumonia, acute dry pleurisy, and phthisis, and less frequently in broncho-pneumonia.

He has been struck with the number of patients who apply for treatment whose chief or only complaint has been of pain in the chest, and in whom careful examination revealed as physical signs a little dulness and a variable number of fine râles, either crepitant or subcrepitant in character. These sounds are superficial, localized in a small area, and increased by cough or deep inspiration, and so common has he found this condition, which he regards as due either to old or recent fibrin on the pleura, or to pleuritic adhesions, that he rarely makes the diagnosis of intercostal neuralgia or muscular rheumatism. Râles at the apices of the lung, if old pleurisy be excluded, he commonly finds to indicate phthisis, and refers to a localized pleurisy. While it might be urged that these sounds were not crepitant râles, they corresponded in everything but the element of a "shower of crackles" to the definition, and they certainly constituted a very fine râle heard on inspiration. Dr. Jackson said he had sometimes heard the crepitant râle present during the second stage of pneumonia, though the number of crackles was much less than in the first stage, and in some instances it required strained attention to hear it. He has always regarded the râle of œdema of the lung as a subcrepitant râle of a peculiarly liquid character. The conclusions which he drew from his study of this subject are:

1. The crepitant râle is not pathognominic of pneumonia.

2. It is heard also in dry pleurisy, in broncho-pneumonia, and in phthisis.

3. There is a strong probability that it is almost always due to pleuritic inflammation.

4. The question as to whether it is heard also in pulmonary œdema and pulmonary apoplexy is unsettled.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, April 2, 1889.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

The first order of business was the

ELECTION OF OFFICERS FOR THE ENSUING YEAR.

The following were chosen:

President.—George W. Jacoby, M.D.

Vice-Presidents.—W. R. Birdsall, M.D., and C. L. Dana, M.D.

Recording Secretary.—Frederick Peterson, M.D.

Corresponding Secretary.—E. D. Fisher, M.D.

Treasurer.—G. M. Hammond, M.D.

Councillors.—Drs. E. C. Seguin, M. D. Field, L. C. Gray, B. Sachs, and M. A. Starr.

DR. C. L. DANA then presented for Dr. J. W. S. Gouley a specimen of the spine and spinal cord in a case of

FRACTURE OF THE BODY OF THE TWELFTH DORSAL VERTEBRA, WITH COMPRESSION OF THE CORD.

The case was of especial interest in connection with the subject of spinal surgery, and of operative interference in cases of fracture and paraplegia. The man, aged twenty, fell, on April 19, 1887, through a floor, ten feet, striking on the abdomen and then turning on the back. Complete motor and sensory paraplegia, with involvement of the sphincters, at once set in. When examined next day by Dr. Gouley, at Bellevue Hospital, the lower limbs were motionless, and there was total anæsthesia up to Poupart's ligament on the left side, and half way up the thigh on the right. The feces came away involuntarily, and the urine had to be drawn. There was no record of fever or pain, except a little of the latter in the back. The patient's condition remained without much change, except that the legs became atrophied and the reflexes lost, for two years, until his death in February, 1889. The autopsy showed fracture of the body of the twelfth dorsal vertebra, and pushing forward of the fragment, reducing the size of the canal to three millimetres, and cutting the cord almost in two. The cord was disorganized at its lower extremity, and secondary degenerations were present, which would be studied later.

DR. PHILIP C. KNAPP, of Boston, then reported

A CASE OF TUMOR OF THE BRAIN; REMOVAL; DEATH.

The patient was a man, aged thirty-two, a florist, with a good personal and family history. In the summer of 1886 he had some nausea and vomiting, and the next winter his hand began to feel stiff. In March, 1887, he had a convulsion, and about the same time he lost power in the left hand. Since that time he had had repeated convulsions, in many of which the left hand was first affected, and a left hemiplegia with contracture. Vision had steadily failed, the mental powers had declined, he had headache, vertigo, nausea, and vomiting. Physical examination showed tactile and thermal anæsthesia on the left side, most marked in the left forearm; loss of muscular sense on that side; double optic neuritis; paralysis with contracture; diminished cutaneous and exaggerated tendon reflexes on the paralyzed side. He was admitted to Boston City Hospital December 17, 1888, and on the 28th a tumor was removed by Dr. E. H. Bradford. The tumor was a tubercle, weighing thirty-five grammes, and bacilli were found in it under the microscope. It was subcortical, and situated in the ascending frontal and parietal convolutions of the right hemisphere, about opposite the second frontal convolution, extending downward and backward into the inferior parietal lobule. The patient died of shock in three-quarters of an hour. There was no autopsy. The localizing symptoms were the convulsions, paralysis, and anæsthesia. The proportion of tumors accessible to the surgeon was regarded, on comparison of statistics, as about five to seven per cent. Fifteen cases had thus far been reported in which the tumor had been removed, and eight recovered from the operation. Four cases of operation for cerebral cysts were cited, and four cases where the tumor was not found at the operation, but was discovered later at the autopsy. Some measurements on skulls and heads were given, showing the inaccuracy of Broca's method of cranio-cerebral topography.

DR. DANA said that neurologists should feel congratulated in that their part in Dr. Knapp's case turned out so correctly and satisfactorily. He thought this case tended to confirm the view that the motor areas represent also to a considerable extent cutaneous sensation. Dr. Knapp's statistics showed that operations have been quite successful, yet he had made them too flattering. The mortality is somewhat larger. He thought, as regards cerebral surgery, that surgeons have not yet reached the degree of perfection in technique that is necessary. The length of time of the operation should be reduced, and hemorrhage more carefully guarded against. As to cranio-cerebral topography, no more accurate rule was needed than that of Horsley for finding the Rolandic fissure; it is more difficult to discover the fissure of Sylvius, and the rules for reaching its position on the skull are inexact.

DR. FRANK H. INGRAM presented a case of

HEMICHOREA FOLLOWING CRANIAL INJURY.

An adult man sustained, seventeen years ago, a depressed fracture of the skull in the left parieto-frontal region. After two years choreiform movements developed in the right arm, gradually extending to the right leg and right side of the neck. Dr. Ingram ascribed the hemichorea to some organic lesion over the motor areas of the right hemisphere, indirectly traceable to the injury to the skull.

DR. BIRDSALL said that this case resembled one of his where a young man, aged fifteen, received a charge of buckshot in the head, near the angle of the jaw. Twenty or thirty buckshot were taken from the skin, and a few entered the brain. He developed in one-half hour chorciform movements on one side, but there was also slight paresis of the same side. He had regarded this case as a post-hemiplegic chorea.

DR. STARR remarked that the movements in this man,

as far as the right side was concerned, were almost precisely like those of case of paramyoclonus multiplex, which he had reported some time ago. There were the same violence and irregularity.

DR. SACHS thought there could be no injury to motor areas in Dr. Ingram's case, because, instead of any paresis there was actually very great strength on the choreic side. He believed it to be a functional neurosis and not organic.

DR. STARR called the attention of the last speaker to the fact that we may have hemiathetosis without paresis, although an organic lesion may be discovered post-mortem. He referred to two cases, one of his own and one at Charity Hospital, in both of which the strength was perfect on the affected side.

DR. FIELD stated that the case mentioned by Dr. Starr, at Charity Hospital, had recently cured herself by prayer, and was a case of hysteria. This was the second time prayer had caused cessation of the athetoid movements in her case.

DR. W. M. LESZYNSKY then presented a case of

HEMORRHAGE INTO THE CERVICAL REGION OF THE SPINAL CORD.

J. B., aged nineteen years, clerk, sixteen months ago wrestled violently with a room-mate, was exhausted, lay down and slept one-half hour. He awoke with a dull pain between the shoulders and wrist-drop on both sides. In twenty minutes all four extremities became paralyzed. During the first week there was occasional loss of control of sphincters. In three months was improved so that he could walk without assistance, the left hand and arm, however, being decidedly paretic. At present there is partial paralysis of the left cervical sympathetic, producing contracted pupil and increase in surface temperature; paralysis and atrophy of muscles of left hand with degenerative reaction; thenar group of right hand also atrophied; both hands cyanotic; no sensory disturbance; tendon jerks in arm increased; also a few changes in lower extremities. He thought the lesion to be intra-medullary hemorrhage into the lower cervical segment of the spinal cord, followed by transverse myelitis.

DR. STARR thought that the diagnosis made by Dr. Leszynsky was defensible. The loss of pain and temperature sense was a very interesting point in the case. The literature of syringomyelia shows that lesion of the gray matter of the cord cuts off the pain and temperature tracts below the lesion.

CORRESPONDENCE.

PLATE MATERIAL FOR INTESTINAL SURGERY.

To the Editor of THE MEDICAL NEWS,

SIR: I noticed your editorial in this week's issue and have also read the report of Dr. Abbe's case in the *New York Medical Journal.*

All the plates used by Dr. Senn were made in this institution, and we, from the first, felt the necessity of a "plate material" which could be extemporarized or prepared hurriedly by the surgeon when called to the country, say to a strangulated hernia where gangrene had set in, or a case of gunshot wound, or any of the thousand and one emergencies which may occur at any time. If Dr. Abbe felt the necessity of a substitute for the bone plates, how much more so must we have felt this need in Dr. Senn's series of experiments. We have tried almost every imaginable substance, but finally cried "eureka" when we used plates made of cartilage from the scapula of a young steer. This substance can be carried in segments and easily and quickly cut down to any size. We have a specimen of intestine taken from a large dog, where the intestine had been severed in four places and again united by four sets of cartilage plates (at one operation) with perfect union at each point of apposition. It would seem to me that the catgut rings as made by Dr. Abbe are not so good as plates, because there is not so large a surface of the intestine held in apposition. Will not some one undertake a series of experiments to find the best material for plates which can be obtained or prepared on short notice? Most respectfully yours,

M. E. CONNELL, M.D.

WAUWATOOSA, WIS., April 15, 1889.

THE MEDICAL EXAMINERS' BILL AND A FOUR-YEARS' COURSE.

To the Editor of THE MEDICAL NEWS,

SIR: The following is forwarded to you for publication. Yours, W. W. KEEN.

APRIL 4, 1889.

TO WILLIAM PEPPER, M.D.,
Chairman Com. Med. Examiners' Bill.

DEAR DOCTOR: The Faculty of the Woman's Medical College of Pennsylvania, being deeply interested in the advancement of medical education, have watched closely the attempt to secure the passage of a law establishing a State Board of Examiners, and have noted the amendment proposed by your Committee.

This College, as long ago as 1869 (see announcement for that year), introduced an elective three years' graded course of instruction, which was made *obligatory* in 1881. A *four years' course* has also for some years been provided by the College, and, as a matter of fact, elected by about *thirty per cent.* of the students; and the Faculty have it in contemplation to recommend, at an early date, to the Board of Corporators of this College, that a four years' course be made essential for graduation.

In view of these facts, the Faculty are fully prepared to advocate the proposed amendment of the bill making a four years' course obligatory.

(Signed) CLARA MARSHALL, M.D.,
Dean of the Faculty.

NEWS ITEMS.

The New York Hospital Library.—This library has recently received a legacy which materially augments the value of its already remarkable collection. The late Professor T. T. Sabine left about five hundred bound volumes and two hundred and fifty pamphlets, monographs, theses, etc.. to the institution. On the 4th instant word was received at the library that the late Professor John Call Dalton also had bequeathed about a hundred and fifty volumes to the library, consisting mostly of works on physiology. They thus supplement admirably the collection of volumes given by Professor Sabine.

The library, as a whole, has become so valuable that the steps recently taken by the governors of the hospital to provide for its establishment in a new fire-proof build-

ing to be constructed on the adjacent lot on the east side of the one it now occupies on West Sixteenth Street will be watched with solicitude by all interested in the safety of this valuable collection.—*New York Medical Journal*, April 13, 1889.

The Results of State Medical Examinations in Minnesota.—Since its establishment the Minnesota Board of Medical Examiners have had eighty-six applications for examination for a license to practise medicine. Of these, six were refused admission because they had not taken three full courses of lectures of six months each. Of the eighty entering the examination, fifty-one were found able to pass the same. Twenty-nine were rejected as not possessing the knowledge of medicine required by the Board. Of those passing, forty-nine are regular, and two are homœopathic. Of those rejected, eighteen were regulars, eight homœopaths, and three eclectics. Students from two-term medical colleges cannot even get a chance to be examined in Minnesota.—*American Lancet*, April, 1889.

Curious Injury to the Brain.—An inquest was held last week by the Coroner for Central Middlesex on the body of a man who died in consequence of an injury inflicted by a poke with an umbrella. The ferrule was thrust into the left eye of the deceased, who promptly lost consciousness, and was conveyed to the police station under the impression that he was suffering from the effects of drink. Early the next morning he was liberated, and went home, but severe symptoms of cerebral injury set in, and he died in the course of a few hours. At the post-mortem examination it was found that the point of the umbrella had broken through the thin plate of bone forming the roof of the orbit, and had penetrated the brain substance. A number of cases are now on record in which this particular injury has caused death, and it is curious to note that in most of them the advent of serious symptoms was delayed for some hours, even when the laceration of brain substance has been very extensive.

In a case which was admitted some years since into the Westminster Hospital, a stick had penetrated four inches without leaving any mark of external injury beyond some slight conjunctival ecchymosis, and in this case, too, the nature of the injury was only revealed on the post-mortem table. It would hardly be fair to expect the police to diagnose an injury which, in the absence of a clear history of what had happened, would be very likely to escape recognition by skilled observers.—*Medical Press*, April 3, 1889.

NOTES AND QUERIES.

POLYDACTYLISM.

To the Editor of THE MEDICAL NEWS,

SIR: I desire to report the following case occurring in my practice, being another *exception* to Professor Brook's theory of polydactylism:

Female, white, aged ten years. Six fingers on right hand, six toes on right foot. Extra members articulating with metacarpal and metatarsal bones respectively. Well developed and moved with ease. Family history traced for three generations, and no deformity of any kind existed.

The above abnormality occurs very seldom in the white race; is very frequent among the lower African tribes.

It seems very strange that the origin of this excessive development should have been ascribed to the male by any one. Especially is it so in the light of the literature extant on the subject of the variation. I have not examined Professor Brook's observations or statistics on the subject, but from the many cases reported by men eminent in the profession, the theory seems to be without foundation. Very respectfully,

C. N. KAVANAUGH.

GAINESVILLE, TEXAS, April 19, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING APRIL 27, 1889.

BYRNES, JAMES C., *Passed Assistant Surgeon.*—Detached from special duty at Norfolk, Virginia, and ordered to the "Chicago."

HEFFENGER, A. C., *Passed Assistant Surgeon.*—Granted leave of absence for six months, with permission to leave the United States.

LEACH, PHILIP, *Passed Assistant Surgeon.*—Leave of absence extended six months, with permission to remain abroad.

LOWNDES, C. H. T., *Assistant Surgeon.*—Ordered to the Naval Academy, Annapolis, Maryland.

MCCORMICK, A. M. D., *Assistant Surgeon.*—Detached from the "Vermont," and ordered to the "Chicago."

WILSON, GEORGE B., *Assistant Surgeon.*—Detached from the Naval Hospital, Mare Island, and ordered to the "Iroquois."

CORDEIRO, F. J. B., *Passed Assistant Surgeon.*—Detached from the "Vandalia," and ordered to the Naval Hospital, Mare Island, California.

BRANSFORD, JOHN F., *Surgeon.*—Ordered to the "Iroquois."

STITT, EDWARD R., *Assistant Surgeon.*—Ordered to the Bureau of Medicine and Surgery, Washington, D. C.

FEREBER, N. M., *Surgeon.*—Ordered to the Naval Academy, Annapolis, Maryland, for examination of candidates for admission to the Academy.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 23 TO APRIL 29, 1889.

By direction of the Secretary of War, the retirement from active service, this date, by operation of law, of DAVID L. MAGRUDER, *Colonel and Surgeon*, under the provisions of the Act of Congress approved June 30, 1882, is announced.—Par. 4, *S. O. 94, A. G. O.*, April 23, 1889.

VOLLUM, EDWARD P., *Colonel and Surgeon.*—Promoted to Surgeon, with the rank of Colonel, from April 23, 1889.

WRIGHT, JOSEPH P., *Lieutenant-Colonel and Surgeon.*—Promoted to Surgeon, with the rank of Lieutenant-Colonel, from April 23, 1889.

WOODRUFF, EZRA, *Major and Surgeon.*—Promoted to Surgeon, with the rank of Major, from April 23, 1889.

Based on surgeon's certificate of disability, leave of absence for one month, with permission to leave the limits of the Department, is granted to *Surgeon* W. H. FORWOOD, Medical Department, Fort Snelling, Minnesota.—Par. 1, *S. O. 35, Headquarters Department of Dakota, St. Paul, Minnesota*, April 8, 1889.

HAVARD, VALERY, *Assistant Surgeon.*—Relieved from duty at Fort A. Lincoln, Dakota, and ordered to Fort Buford, Dakota.—Par. 29, *S. O. 95, A. G. O.*, April 24, 1889.

CRAMPTON, L. W., *Assistant Surgeon.*—Relieved from duty at Fort Bridger, Wyoming Territory, and ordered to Fort Lyon, Colorado.—Par. 29, *S. O. 95, A. G. O.*, April 24, 1889.

SPENCER, W. G., *Assistant Surgeon.*—Relieeed from duty at Fort Yates, Dakota, and ordered to Fort Bridger, Wyoming Territory.—Par. 29, *S. O. 95, A G. O*, April 24, 1889.

ROBERTSON, R. L., *Assistant Surgeon.*—Relieved from duty at Fort Buford, Dakota, and ordered to Fort A. Lincoln.—Par. 29, *S. O. 95, A. G. O.*, April 24, 1889.

By direction of the Secretary of War, EZRA WOODRUFF, *Captain and Assistant Surgeon*, is relieved from duty at Fort Missoula, Montana Territory, and will report in person to the commanding officer at Fort Monroe, Va., for temporary duty at that post.—Par. 14, *S. O. 92, A. G. O.*, April 20, 1889.

By direction of the Secretary of War, leave of absence for four months, on surgeon's certificate of disability, with permission to leave the Department of Texas, is granted to FREEMAN V. WALKER, *First Lieutenant and Assistant Surgeon.*—Par. 12, *S. O. 92, A. G. O.*, April 20, 1889.

THE MEDICAL NEWS
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ORIGINAL LECTURES.

THE PLANS AND PURPOSES OF THE JOHNS HOPKINS HOSPITAL.

An Address delivered at the opening of the Hospital, May 7, 1889.

BY JOHN S. BILLINGS, M.D.,
SURGEON U. S. ARMY.

THE third paragraph of the letter of instructions communicated by Johns Hopkins to the Trustees whom he had chosen to carry out his plans for a hospital in the city of Baltimore, states that "it is my wish that the plan . . . shall provide for a hospital which shall, in structure and arrangement, compare favorably with any other institution of like character in this country or in Europe." What do you suppose the writer was thinking of when he penned that sentence? Had he in view any definite ideal, any mental picture of the institution which he proposed to establish, or was it merely an expression of a desire to give to his city the best thing that could be devised? I have read that letter many times, have heard much of the ideas, hopes, and wishes which were expressed in the numerous conversations which preceded its preparation, and it seems to me that the writer had an ideal, and not a mere vague desire—an ideal which was no doubt somewhat misty, but which did not correspond to any existing hospital, and one which he did not attempt to define except in a few prominent points to which I shall presently refer. In most respects Johns Hopkins took the same course with his hospital which he did with his University, and deliberately refused to trammel with specific directions those whom he had chosen to carry out his plans; but this letter of instructions indicates, nevertheless, a conception of much more definite character, and one which had been the subject of more discussion and reflection, than his scheme for an university. Whether this be so or not, I am at all events sure that his Trustees have endeavored to comply with this letter of instructions, and to do so in the broadest and best sense of the words.

The beginning of the results we have before us to-day; results which even now are not confined to these particular aggregations of bricks and mortar, as will be presently explained, and the end of which will be, as we hope and believe, to make life happier for millions now living and yet unborn. Only those who took part in the early deliberations of those charged with this trust can fully realize the anxieties, the doubts, the manifold perplexities which at first attended their decisions and movements. Only one or two of them had any knowedge of hospital matters; most of them were business men, bankers, lawyers, judges, railway managers, men who knew something of the management of men and money, but who were now brought face to face with a new problem, viz., how to build, organize, and manage a hospital so that it should compare favorably with any other hospital in this country or in Europe.

To "compare favorably with," what does that mean? It is a peculiar phrase, which, coming from a shrewd business man and a member of the Society of Friends, signifies, I think, to excel, if possible; at all events that is the safest interpretation. And it was not this or that hospital which was to be surpassed or equalled, but all other hospitals in this country or in Europe; Africa, Asia and Australasia being put out of the question. It was a large contract.

The location was fixed—that had been done by Johns Hopkins, but they had to decide whether the structures to be erected should be temporary or permanent, of wood, brick or marble, in one large building or in many, and many other like points, before even the preparation of plans could be commenced. They followed the instructions of the donor and got advice; of which a great abundance was available. They visited the large hospitals of our eastern cities, employed five men, supposed to be skilled in hospitals, each to write an essay giving his plans and suggestions, published these essays in a book which had a wide circulation, and studied the criticisms and reviews to which this book gave rise.

Having duly considered the multifarious and widely divergent suggestions thus obtained, they finally selected one of the essay writers and asked him if he was satisfied with his own plans now that he had seen the others and the published criticisms upon them. He promptly said that he was not, whereupon they asked him to try again and do better. He set to work, aided by the architect of the Board, and the result was a set of sketch plans which he took abroad and obtained much counsel and criticism on, examining at the same time the model hospitals of Europe. He was much less satisfied with the sketch plans when he came back than he was when he started, and again the Building Committee, the architect, and himself reviewed the whole matter, and finally settled on the general arrangement which you will see to-day. Many details remained to be worked out; even the façades had not yet been designed; but the general scheme was settled, and the rest was comparatively easy for the time being.

Let us now for a few moments consider the broad general principles which governed the Trustees in the adoption of this plan. The first hospitals were established to give shelter and food to the sick poor, especially those who gathered in cities. Gradually physicians found that they could learn much in these aggregations of suffering and that they afforded the means of teaching others; but this last use of them is only about two hundred years old. Gradually, also, it came to be known that the knowledge thus obtained in the care of the sick poor was of use in treating the diseases of the well-to-do; and finally, within the last twenty-five years or so, people are beginning to find out that when they are afflicted with certain forms

of disease or injury they can be better treated in a properly appointed hospital than they can be in their own homes, no matter how costly or luxurious these may be. In the hospital they can have not only all the comforts of home, but more; not only skilled medical attendance and skilled nursing, but the use of many appliances and arrangements specially devised for the comfort and welfare of the sick which can hardly be found in any private house, and also freedom from noise and many petty annoyances, including in some cases too much sympathy and in others too little. This hospital, then, is to provide for the rich as well as for the poor; for those who can, and ought to, pay for the help given, as well as for those who cannot.

A second cardinal principle to be observed in such a hospital as this is, that it shall do as little harm as possible. A hospital may do harm by its foul air, by spreading contagious disease among its inmates, by neglect or carelessness of its nurses or attendants; and in years gone by hospitals have, no doubt, caused nearly as much sickness as they have relieved. This is now rarely the case, and in this hospital the arrangements for ventilation, isolation, and nursing are such as to do away entirely with this danger. There is another danger connected with free hospitals and dispensaries which is of quite a different kind and to which I can here only allude, namely, the danger of promoting negligence, shiftlessness, laziness, and vice by offering free relief from their consequences—the danger of pauperizing people. This is a danger connected with organization and management rather than with construction, and I can only say here that it has been foreseen and will be, as far as possible, guarded against.

The third principle to be kept in view in such a hospital as this is, that it should provide the means of giving medical instruction, for the sake of the sick in the institution as well as of those out of it. It is well known to those familiar with the subject that the sick in a hospital where medical instruction is given receive more constant, careful, and thoughtful attention than do those in a hospital where no such instruction is given. The clinical teacher must do his best; keen eyes will note every error in diagnosis, every failure in results of treatment. Moreover, the very act of teaching clarifies and crystallizes his own knowledge; in attempting to explain, the dark places become prominent and demand investigation, and hence it is that those cases which are lectured on receive the best treatment. I need say nothing here on the other side of the question, the value of properly trained physicians to the community and the necessity for hospital instruction in such training; Johns Hopkins understood all this and specially directed that "in all your arrangements in relation to this hospital you will bear constantly in mind that it is my wish and purpose that the institution shall ultimately form a part of the Medical School of the University."

Now there are medical schools and medical schools, and in obeying this direction of the donor the Trustees had to consider what sort of a medical school this school of the University was likely to be. As the majority of the Trustees were also Trustees of the University, they knew well the principles which underlie the organization of that institution and that the same principles would govern the organization of the medical department when that came to be taken in hand. One of these principles is the thorough teaching of that which is known, another is to increase that which is known, and to furnish the men and means for doing this. So also the hospital should not only teach the best methods of caring for the sick now known, but aim to increase knowledge and thus benefit the whole world by its diffusion. Another point which had to be kept in view was the direction of Mr. Hopkins that there should be established, "in connection with the hospital, a training school for female nurses, not only to care for the sick in the hospital but to benefit the whole community by supplying it with a class of trained and experienced nurses."

It is also highly desirable that a hospital of this kind should have connected with it a well-appointed dispensary for the treatment of those who need medical aid but not a bed in the hospital. Through such a dispensary much good can be done at small cost, the selection of proper patients for the hospital is facilitated, the means of medical investigation and teaching are greatly extended and the scope of the nursing system can be made to reach the poor and ignorant in their own homes.

The last point to which I shall refer, which was kept in view by the Trustees in deciding upon the plans, was the general appearance of the buildings and grounds.

Mr. Hopkins gave no specific directions as to the buildings, but he directed that the grounds should be properly enclosed by iron railings, and so laid out and planted as to be a solace to the sick and an ornament to the city, and it was evident that the buildings should be of the same character so far as their purpose would admit. It was therefore decided that, while no utility should be sacrificed for the sake of architectural ornament, and the main purpose which I have referred to should be fully worked out in the plans before any attention was paid to external appearance, it was fit and proper that the buildings should form an ornament to the city, and a suitable monument to the memory of the donor.

Bearing in mind, then, these main principles, to provide for the proper care of the sick, both rich and poor, to provide for the highest class of medical education, to increase and diffuse knowledge, to provide trained nurses for both hospital and city, to provide a dispensary, and to make the buildings and grounds ornamental and attractive, let us see how the problem has been thus far worked out.

I will begin with the arrangements for securing that article of prime necessity in a hospital, viz., pure air. Air supply and ventilation in this climate are inseparably connected with heating for a considerable portion of the year, for comfortable warmth must be secured, and on the means of doing this must largely depend the methods of ventilation and their success. The temperature of Baltimore may vary from 103° in the shade to 17° below zero F., hence its perfect hospital must be one which would answer for the tropics or for Northern Russia. To secure this, double walls, with air spaces, were given to the buildings, and a system of heating by the circulation of hot water was adopted for the wards. This system consists of central boilers, from which flow and return pipes extending beneath every building, connected with heating coils, of which there is one for every two beds in the ward above. The temperature in these coils can be exactly regulated to any temperature between 150° F. and the temperature of the external air by simply regulating the velocity of the flow of water by the valves at-

tached to each coil, and thus it is quite possible to give one pair of beds a temperature of 70° and another pair in the same room, at a little distance, a temperature of 60° F., to suit the needs of different cases. The 80,000 gallons of water contained in this heating apparatus go round and round, carrying heat from the furnaces to the wards, but every building has its own independent means of ventilation, and it is not possible to go from one ward into another without going into the open air on the way, so that foul air, if any forms, cannot spread from one building to another. Nevertheless, the buildings are so connected by corridors and underground tunnels that in passing from one to another there is no exposure to rain or snow, and the least possible to cold air, while the food is not exposed at all. This is not the place to describe the ventilation. I will only call your attention to the fact that the temperature of the incoming air by any bed is easily changed by turning a valve, while the quantity of air is not changed; to the arrangement for taking foul air from either the bottom or top of the ward, or from both, and to the fact that all this has been thoroughly tested during two winters and found to give the results hoped for.

One of the peculiarities of the wards is that all the service rooms are collected at the north end, leaving the south end free from obstruction and fully exposed to the sun, the end of the ward being a large bay window looking out on the central garden, and with a floor which can be warmed so that the patients, able to sit there, can be thoroughly comfortable. Another peculiarity of the sick wards is the arrangements for easy cleansing, and to prevent possible accumulations of dust in corners and crevices. Corners are to a great extent done away with, and easy curves given in their place, even at the junction of the floor and walls there is a curve instead of the usual right angle, and I advise you to look at it and see how it has been produced, for it ought to become fashionable, and take the place of the old mop-board in all well-constructed houses. So, also, the doors have not the usual moulding about the panels, giving recesses which it is almost impossible to clean.

One of the wards is especially arranged for cases which may be either contagious or offensive. In this building each patient is in a room by himself, and all these rooms open into a corridor through which the wind is always blowing. There are many details about this isolating ward which are worth looking at, but which I have not time now to refer to, and I must omit details about the pay ward, the octagon ward, and the peculiar fittings and conveniences of the kitchen, laundry, apothecaries' building, etc., for the same reason.

Let us pass now to the second object of the hospital, the giving means for higher medical education, and see what has been done for that. In the first place, there is a large amphitheatre with appended rooms for the reception of accidents and emergencies of all kinds. In the second place, provision is made for at least thirty students to reside constantly in the hospital and devote themselves under proper guidance to the study of disease and the practical care of the sick. It is intended that these places shall be open only to those who have had a thorough previous training, and who have shown themselves to be fitted to undertake this important part of their studies. As a rule, not more than five per cent. of medical graduates have had any opportunities worth speaking of to study and treat diseases in the living man when they receive their diplomas. They have to get this experience on their first patients, and sometimes the experience is rather hard—for both doctor and patient. This hospital has provided for the class of the medical school in the last year of their studies good rooms with bath-rooms, a dining-room, and other conveniences, and here they can be taught the actual daily work of a physician, for which all their previous studies are only preparatory. Many of the arrangements of the hospital have been constructed with reference to this instruction; it is a great laboratory for teaching the practical applications of the laws of hygiene to heating, ventilation, house drainage, and other sanitary matters. All pipes and traps are either exposed to view or can be seen by merely opening a door, and in the tunnel beneath the corridor you can study at your leisure the complicated and yet simple arrangement of pipes for gas, steam, water, sewage, etc., which are usually buried and remain a profound mystery to every one except the plumber, and often puzzle even him.

Closely connected with this subject of teaching is that of increasing our knowledge of the causes, symptoms, results, and treatment of disease; in fact, one cannot be thoroughly and well done without the other, and hence many of the provisions for the one are also useful for the other. For example, to go back to our system of heating and ventilation, there are many points connected with it which are destined for experimental work, to compare steam with hot-water heating, to determine the velocity of water at different temperatures, to compare ventilation by aspiration with that by propulsion, or by upward currents with those drawn downward.

One structure is very largely devoted to and fitted for experimental research, and that is the pathological laboratory, where the causes, processes, and results of disease are to be studied. Upon the results obtained in that laboratory may yet depend the saving of many lives, the relief of unspeakable agony, the warding off of pestilence from the city, and, to put it in a strictly business light, the value of real estate and the rate of taxation of this community. We are on the verge of great advances in our knowledge of the causes and methods of disease, and I feel sure that these will be only preliminary steps to far greater and better knowledge of how to prevent or to treat them than we now have. The probable length of life of the newborn infant to-day is not much more than half what it ought to be; the practical productive period of the life of our men and women is shortened and interrupted by unnecessary disease and suffering; but remember, if these things are to be amended, it is not merely by teaching old doctrines; we must open fresh windows and let in more light, so that we can see what these obstacles really are. It is in this work of discovery that it is hoped that this hospital will join hands with the University, and it is in this hope that some of the structures around you have been planned and provided.

A word now on the fourth object kept in view in this hospital, viz., the Training School for Nurses.

Some of you probably have had some personal experience of the difference between an educated, properly trained female nurse, and one of the old-fashioned sort, but if you have not, it would take much more time than I now have to describe it. I can only say, that in many

cases a competent trained nurse is as important to the success of treatment as a competent doctor, and that one of the greatest difficulties in treating well-to-do patients in their own homes in this city is the want of proper nurses. Affection and zeal may do much, but they cannot take the place of knowledge, and this kind of knowledge is not to be acquired in a day or in a month. It is a work best carried out by women, though not one woman in ten is fit for it, or should undertake it. But the woman who is fit for it, who has physical health and strength, sound sense, loving kindness, patience and tact, and who has been thoroughly taught the art of nursing the sick, with all its thousand details, has the power of doing good and increasing happiness to a degree which few others possess. In a properly conducted hospital ward she is a necessity, but her field of usefulness and helpfulness is by no means limited to that. She is needed outside the hospital, in the home of the rich to nurse and care for the sick; in the home of the poor, to teach prevention as well as nursing. To gather here such women, to have them thoroughly instructed, to furnish them with the attractive and comfortable home which they deserve, and to send them where they are most needed, with provision for their return when the work is done, is the object of the training school of this hospital.

For this purpose the Trustees have provided a large and handsome building, separated from the others, and exclusively appropriated to the female nurses, where each can have her own comfortable room, and where a common parlor, library, dining-room, bath-rooms, and, in short, the arrangements of a first-class hotel are provided for their use. Here also is a training-kitchen and a lecture-room to aid in the work of instruction. The intention is that when the nurse has finished her six or eight hours' tour of duty with the sick, she shall come quite away from the ward and all that pertains to it, and take her rest and recreation in a totally different atmosphere, and special effort has been made to have this home attractive and pleasant.

The fifth object which I mentioned as having been kept in view in the plan and construction of these buildings is the Dispensary. This is a large building on the north front, consisting of a large central waiting-room, surrounded by a number of smaller rooms for the use of the physicians and surgeons who are to examine and prescribe for the patients, and having bath-rooms, and a small apothecaries' establishment for the issue of the medicines ordered. This building is connected with the amphitheatre by a short covered corridor, and is specially arranged with reference to teaching. It, as well as the amphitheatre, is heated by steam instead of hot water, partly because they are not in constant use, and a rapid means of warming is desired, partly for the purpose already referred to of giving the means of experimental comparison of the two systems. The means of supply of fresh warm air in these two buildings, and of removing the air made impure by exhalations are somewat peculiar, and merit examination.

With regard to the architectural design and external appearance of the buildings, and the laying out and ornamentation of the grounds, I can only say that you must see and judge for yourselves whether Mr. Hopkins' wish that they should be an ornament to the city has been successfully complied with. So far as external ornamentation is concerned, it is confined almost entirely to the large buildings on the west, or Broadway, front, which it was felt should harmonize in style of decoration. These central buildings, consisting of the administration, with the one pay ward on either side, are constructed of pressed brick with ornamentation of a dark blue, fine-grained, hard, and durable stone, known as Cheat River stone, and of moulded terra-cotta of the color of the brick. The external designs for these, as for all the other buildings, were furnished by Messrs. Cabot & Chandler, of Boston, and I think we have good reason to be well satisfied with the results they have produced. The grounds are laid out and planted in accordance with designs furnished by Mr. E. W. Bowditch, of Boston.

As regards construction, I do not hesitate to affirm that these are the best built buildings of their kind in the world. The material is the best, the most skilled and careful workmen were employed, and, above all, the work received the most careful, conscientious, and intelligent supervision as it progressed. For this supervision we are indebted to Mr. John Marshall in the beginning and to Mr. William H. Leeke for the remainder and conclusion of the work; and we are also indebted to the latter for many valuable suggestions as to modes and details of finish which are so important in a hospital. The details of the complicated and extended system of heating, ventilation, and plumbing were designed and the work executed by Messrs. Bartlett, Hayward & Co., of this city. I should like to go on and mention a number of other names of persons who have done good work here, but want of time forbids. I will only say that these buildings embody the counsels and suggestions of many men and women in this country and abroad, but among them all there is no one who from the very beginning of the conception of the idea of this magnificent gift in the mind of Johns Hopkins down to this present moment who has had more to do with shaping the results, who has furnished more valuable suggestions, who is more thoroughly acquainted with all that has been done, and why it has been done, who has worked so unselfishly, and who more deserves honor in this connection than the President of the Board and Chairman of the Building Committee through the whole progress of the work, Mr. Francis T. King.

Briefly and incompletely as I have sketched these salient points of the plans and purposes of this hospital, I hope I have, nevertheless, shown you that it is intended for other purposes besides providing shelter, food, and drugs for the sick. In saying this I have not the least wish to undervalue or disparage those institutions which do make this their main or only object. There is abundant need of their existence and work also; but this institution should not be judged by the rules which apply to them; it cannot be managed after their fashion: if it does not produce results different from theirs it is a fallure and the expenditure upon it a mistake.

Thus far I have been speaking of the buildings only, and trying to give you some idea of the motives which led to their being as they are, and what they are, and not otherwise. From the beginning, however, it has been recognized that the buildings and machinery are only means to an ends, tools which must be handled by skilled workmen to produce the desired result; and throughout all these years of planning and building, the question of organization and of the sort of men and women who were to use and work with these things has

not been lost sight of. It is true that no attempts were made to select and engage individual members of the hospital staff until quite recently; but there was, nevertheless, a tolerably definite conception as to the ideas, mode of work, character, and wants of those who are to constitute this staff, and when the time came for selecting, it was made by this standard.

On the philanthropic, social, and religious aspects of this great trust I do not propose to touch, but I wish to say a very few words of the hopes and wishes of scientific men and physicians with regard to it. From the time of the first announcement of the Hopkins bequests to the present, these men, all over the world, have been keenly interested in the plans and methods adopted in carrying them out. Whenever and wherever the problems of higher medical education have been discussed within the last ten years, there has been speculation as to the probable course of the Johns Hopkins medical department, and the influence it would have upon the standard. I may even say that some of this influence has been exerted in advance, has been discounted, as it were, for the plans of this hospital have stimulated changes in some of our best medical schools, and have been copied with more or less modification in some of our latest hospitals.

What is it, then, that the physicians want? Is it more physicians, more family practitioners, more surgeons, more specialists? Not at all. They know very well that there is no danger that the supply will not be equal to the demand; when they become overburdened with practice they do not at present find it difficult to obtain assistants; they have no fear lest the seventy or eighty medical schools of this country should fail to produce a sufficient number of medical practitioners to meet the wants of our increasing population; and they know also that the medical schools of Great Britain and Germany are sending to us quite as much of their product as we can conveniently dispose of. They hope that the Hopkins medical school and hospital will do two things. The first is, that it will demand of those who propose to become its students evidence that they have a sound basis of preliminary education before they commence, and that its standard in this respect shall be little below that of the requirements for granting the degree of bachelor of arts in the University. It is hoped that the men thus selected will go through a carefully graded course of study, including actual work in properly fitted laboratories, and that after this they will be brought into contact with the sick, and thus obtain practical experience of the duties and responsibilities of the practitioner of medicine before they offer their services as such to the public.

So much our physicians desire of every medical school, for the sake of the honor and dignity of the profession, and for the good of the public, and they desire especially that this school shall form an example to which they can point as showing how medical education should be conducted, and what should be required of the candidate for the degree of doctor of medicine.

The very general interest in the combined Hopkins trusts felt by physicians and scientific men not only of this country but of the whole civilized world, is largely due to the belief that the relations which will here exist and be maintained between the University as a whole and its medical department, of which this hospital is to be an important part, will be close and intimate, so that the true University spirit will pervade, stimulate, and encourage the hospital work. In this country medical schools have either had no connection with Universities properly so called, or the connection has been slight and nominal, such as depends upon the formal conferring of medical degrees by the University. Here, however, through the influence of the biological department, there are secured common interests and mutual influence, and it is hoped therefore, that the necessary details of technological instruction will be arranged in accordance with and subordinate to the broad principles of scientific culture upon which this University is organized.

It is because it is believed that this will be the case that there is a widespread hope and expectation that these combined institutions will endeavor to produce investigators as well as practitioners, to give to the world men who can not only sail by the old charts, but who can make new and better ones for the use of others. This can only be done where the professors and teachers are themselves seeking to increase knowledge, and doing this for the sake of the knowledge itself;—and hence it is supposed that from this hospital will issue papers and reports giving accounts of advances in, and of new methods of acquiring knowledge, obtained in its wards and laboratories, and that thus all scientific men and all physicians shall share in the benefits of the work actually done within these walls. But, however interesting and valuable this work may be in itself, it is of secondary importance to the future of science and medicine, and to the world at large, in comparison with the production of trained investigators, full of enthusiasm, and imbued with the spirit of scientific research, who will spread the influence of such training far and wide. It is to young men thus fitted for the work that we look for the solution of some of the myriad problems which now confront the biologist and the physician.

Do I seem to ask too much? to be too sanguine as to what human thought, and study, and skill may accomplish? to forget that there is one event unto all; that the shadow of pain and death comes on the wise man as on the fool? I have two answers. As surely as our improved methods of prevention and treatment, based on the advances in knowledge of the last fifty years, have already extended the average duration of life in civilized countries nearly five years, have prolonged thousands of useful and productive lives, and have done away with the indescribable agonies of the pre-anæsthetic period, so surely we are on the verge of still greater advances, especially in the prevention of infectious and contagious disease, in the resources of surgery against deformities and morbid growths, and in the mitigation of suffering due to causes which cannot be wholly removed. But the second answer is more important, and it is this: It is our duty to try to increase and diffuse knowledge according to the means and opportunities which we have, and not to rest idle because we cannot certainly foresee that we shall reap where we have strewn. "It is not incumbent on thee to finish the work, but thou must not therefore depart from it," says the Talmud, and "Of him to whom much is given much shall be required," says the Scripture.

To you, the officers of this institution, and to you, men and women of Baltimore, there is now given the opportunity of giving powerful aid in this increase and diffu-

sion of knowledge of the laws of human life, disease, and death. Surely, those who are working in the wards and laboratories of the hospital and University will do their best; surely, also, the citizens of this great city of a great nation, which at no distant day will take the lead in scientific work, will encourage, sustain, and sympathize with these workers. I would have this hospital become famous, not for fame's sake, but because this will be evidence of the good work which has been done in it; but we must not be impatient. There are difficulties to be overcome, delays which must be submitted to. We cannot at once have the medical school which is essential to the plan which I have sketched; but there is plenty to do for the present, and I am certain that in time all these present obstacles to full development will be happily overcome.

Success in this, as in all other enterprises in this world, is to be obtained by unselfish work for the good of others, by wise counsel, by coöperation, and by persistent effort.

A hospital is a living organism, made up of many different parts, having different functions, but all these must be in due proportion and relation to each other, and to the environment, to produce the desired general results. The stream of life which runs through it is incessantly changing; patients and nurses and doctors come and go; to-day it has to deal with the results of an epidemic, to-morrow with those of an explosion or a fire; the reputation of its physicians or surgeons attracts those suffering from a particular form of disease, and as the one changes so do the others. Its work is never done; its equipment is never complete; it is always in need of new means of diagnosis, of new instruments and medicines; it is to try all things and hold fast to that which is good.

"Et quoniam variant morbi, variabimus artes."

It has been said that "hospitals are in some sort the measure of the civilization of a people, but a hospital of this kind should be more than an index. It should be an active force in the community in which it is placed. When the mediæval priest established in each great city in France a Hôtel Dieu, a place for God's hospitality, it was in the interests of charity as he understood it, including both the helping of the sick poor and the affording to those who were neither sick nor poor an opportunity and a stimulus to help their fellow-men; and doubtless the cause of humanity and religion was advanced more by the effect on the givers than on the receivers. It is the old lesson so often expounded, apparently so simple and yet so hard to learn, that true happiness lies in helping others; that it is more blessed to give than to receive.

In some respects we to-day have a much wider outlook than the men of a thousand years ago. This hospital is designed, as I have told you, to advance medical science as well as to give relief to the sick poor, but the fundamental motive is the same—to help others.

We have here the beginning of an institution which shall endure long after the speakers and the audience of to-day shall have finished their life-work and have passed away. Founded in the interests of suffering humanity, intimately connected with a great university, amply provided with what is at present known to be essential to its work, we have every reason to predict for it a long and prosperous career, with steadily progressing improvement in its organization and methods, and enlargement of its activity and influence.

Let us hope that before the last sands have run out from beneath the feet of the years of the nineteenth century it will have become a model of its kind, and that upon the centennial of its anniversary it will be a hospital which shall still compare favorably, not only in structure and arrangement, but also in results achieved, with any other institution of like character in existence.

ORIGINAL ARTICLES.

THE RELATIONS OF THE TUBERCLE BACILLUS TO THE EARLY DIAGNOSIS AND TO THE PROGNOSIS OF PHTHISIS.[1]

BY J. WEST ROOSEVELT, M.D.,
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THE subject assigned to me to-night is one regarding which but little need be said. As I understand the purpose of this meeting, it is more to direct and call forth discussion upon the whole subject of phthisis, than to attempt to lay before you any new views, that the papers are read. For this end I shall take a pretty positive stand in my short paper, hoping that those who discuss it will thus be induced more fully to express their approval or dissent.

The first division of my subject is the value of the discovery of the bacillus tuberculosis in the sputum of patients in the early diagnosis of phthisis. So often we have presented a problem like the following. A young man is engaged in a business of such a nature that his presence is absolutely necessary in order successfully to advance it. He works hard; after a while he begins to lose flesh a little and has a cough, with perhaps slight expectoration. He consults us, and asks whether or not he has phthisis. Perhaps some of his relations may have had it. Now, should we answer yes, and recommend a change of residence, it means that his business prospects are ruined. He may have to commence life again. If we are right, all is well; but, if wrong, we have done a grave injury. On the other hand, if we say he has no phthisis, and are wrong, his life may be the price of our blunder.

How should we go to work in order to answer the question? We carefully ask about the history; we examine the chest; we examine the sputum, perhaps a number of times; we may find the bacillus in the sputum, and then all doubt is removed. But, suppose we do not; what then? Can we say that phthisis does not exist? Decidedly, no. It must be remembered that in phthisis we often have no tubercle which is situated so as to be connected with the air-passages. It is, indeed, possible for an extensive tubercular deposit to occur, and yet no

[1] Read before the New York Academy of Medicine, May 2, 1889.

bacilli be discharged. It is also possible for so much bronchial discharge to exist that the bacillus may be overlooked in the large quantity of expectoration. The search for a needle in a haystack is usually thought unprofitable, and it is not unlike the search for a few bacilli in a number of ounces of expectoration. Surely none would deny, in a given case, the existence of phthisis because the bacillus could not be found. Even though very many careful examinations be made and no bacilli be discovered, yet this evidence against the diagnosis of phthisis is but slight. Of course, the bacillus as positive evidence is invaluable. We must not allow too much time to go by while waiting to find the microbe, or the patient may lose his life before we make up our minds.

Before going further I wish to remind you of some points regarding the anatomy of the lesions of phthisis, and the manner in which the bacilli are distributed in the lung tissue. Phthisis I define as a more or less complex disease, depending upon the growth of the bacillus and consequent tubercle formation. As seen in New York, there are a number of cases in which the lesion, until near the end, seems to consist of the deposit of tubercles, beginning in the upper lobes and gradually spreading and involving the lower. There is also some pleurisy and some bronchitis. Now in these cases there is not much tendency for the tubercles to break down early in the disease. There being practically no pulmonary consolidation in these cases, nothing at first but a few scattered tubercular nodules, the physical signs are of little value. It is possible for this form of phthisis to progress very far, yet give no distinctive signs. Unfortunately, for the reason that scattered tubercles constitute the lesion, and that these do not early break down and empty their bacilli into the bronchial secretion, the detection of the latter is frequently impossible at the very time they would be of the most value.

In another form of phthisis we have with the tubercle deposit pneumonia, coagulation-necrosis, marked bronchitis, etc. Practically, this form gives signs, owing to the consolidation, earlier than the other. It also breaks down over a greater extent of the lungs. The bacilli are frequently and abundantly discharged.

It may be said that those cases presenting the greatest difficulties for diagnosis, disregarding the bacillus, present also the greatest difficulties in finding the bacillus. In many of them it is not to be found, and we must make the diagnosis mainly from the history, and to a lesser degree from the physical signs.

As to the prognostic value of the bacillus it can hardly be said to have any. Patients going rapidly down hill will be found whose expectoration contains but few bacilli, and on the other hand large numbers may be found in the sputa of those whose disease is advancing slowly, if at all. It is only a question of the freedom with which cheesy matter is emptied into the bronchi. Strangely enough, there is a decided tendency for many to regard the bacilli which are discharged as a measure of the disease, as if they and not the ones growing in the patient did the harm. Hence, we read of "diminution in the number of the bacilli" under varied treatments as a symptom of improvement. It may or may not be such a symptom; at best it is a most delusive one. Watching for it and laying stress on it has done one great harm: it has given a longer life to the various so-called "antiseptic methods" of treatment. Of course, the word "antiseptic" is here used as meaning destructive to bacillary life.

"A strong solution of, *e.g.*, carbolic acid kills bacilli after some hours; therefore, give very small doses of that agent (doses so small as to be when diluted with a bulk of fluid equal to that of the blood entirely harmless to the microbes) and thus cure the phthisis." This is the real basis of reasoning for all such treatment, and how often have we heard in regard to each of the new antiseptic methods that "the cough and expectoration and night-sweats improved; the bacilli were reduced in numbers," and to this should usually be added, the patients died!

Now the fact that bacilli vary greatly in numbers from time to time has added somewhat to the apparent value of the many different kinds of treatment. I am aware of the fact that I am somewhat exceeding the bounds of my subject, but the time has come for a protest to be made against the administration of poisons to unfortunate people in the so-called "antiseptic treatment" of phthisis. To do this and to call the methods by which the particular poisons have so far been chosen "scientific," is possibly to injure the patient, but certainly to exhibit a peculiar idea of what constitutes science.

I would not for a moment be understood as objecting to the trial of any non-injurious treatment for phthisis. It would be reasonable to try an infusion of cobwebs, such as was of old used in malaria. I protest, however, against the giving of any antiseptics tested as now and calling it rational. While the complex body cells are easier to kill than the more simply constructed bacilli, it does not seem very encouraging to try to kill the latter while leaving the former untouched. It is probable that nourishing the phagocytes is better than trying to kill the bacilli. It is possible that empirically something may be found capable of acting as a specific bacillary poison, but no evidence has yet been obtained that such a substance exists, nor is it likely to be obtained by the present crude methods.

The propositions set forth in this paper are these:

1. The bacillus tuberculosis is of great positive but no negative value in diagnosis.

2. In prognosis the bacillus is of but little value.

3. In both diagnosis and prognosis quite as much depends upon the careful study of the case, as a whole, as if there were no bacilli concerned in producing the disease; except that a diagnosis is sometimes rendered positive, which would otherwise be doubtful, by finding the microbe.

In concluding the paper, I can only say that it seems a pity to have taken up your time to make such absolutely trite remarks.

Before any discussion takes place I wish it understood that I say nothing about any phthisis not of bacillary origin. We see such cases very rarely in New York. What I refer to is the so-called "catarrhal phthisis" and "tubercular phthisis," both diseases caused by the bacillus of Koch.

THE USE OF BORAX IN THE TREATMENT OF EPILEPSY.

BY HORACE G. HILL, M.D.,
OF PHILADELPHIA.

IN November, 1884, Mary ——, aged sixteen, was brought to me, with the following history: Her father had always been considered a delicate man, and died when about thirty-two years of age, from some form of spinal disease. Her mother is still living, and, with the exception of attacks of hepatic colic, has been in fairly good health. She is, however, of decidedly neurotic temperament, and subject to severe headaches from slight causes. One uncle, on the mother's side, was an epileptic from early childhood, and died at sixteen years of age, from burns received by falling into a fire during a convulsion. Another uncle on the same side is living, but has for many years been a confirmed epileptic. Up to the age of seven years the patient appeared to be a healthy child; but at that time attacks of *petit mal* first showed themselves, recurring at progressively shorter intervals. One year later the attacks of *grand mal* were developed. Menstruation was established at fourteen, but was irregular in interval and amount, and the recurrence of the period was always attended by increased frequency and severity of the epileptic seizures. Few days passed without one or more convulsions, and frequently four or five of the major attacks and numerous minor attacks would occur within twenty-four hours. In addition to the treatment of her family physician, she had consulted three specialists in Philadelphia and New York. The one placed her upon a combination of the three bromides; the second upon nitroglycerine; and the third upon hydrobromic acid. In each instance the use of the remedy was followed by some temporary improvement, in that the number of seizures was lessened, but in each instance, notwithstanding the utmost care in following the line of treatment marked out, she relapsed after a few months.

She was, when I first saw her, of large frame, and with a fair amount of fat. The flesh was flabby, the complexion decidedly chlorotic, and the eyes lacked expression. She was very reticent, without animation, afraid of company, and very distrustful of herself. Mental development was much retarded, it being impossible for her to fix her attention upon anything requiring concentration. She was easily fatigued by either mental or physical exertion. The appetite was capricious, and the bowels constipated. She suffered frequently from obstinate frontal headache, sometimes attended by nausea and vomiting. The circulation was sluggish, and cold feet a constant symptom. Urine analysis showed an excess of phosphates, but nothing else abnormal. Menstruation was irregular and scanty, sometimes recurring every two weeks. There was the usual bromide acne upon the face and chest. The epileptic attacks (the frequency of which has been before stated) were largely nocturnal, but there was no absolute rule in this respect.

Treatment.—In taking charge of the case, the great importance of proper food, sufficient time for meals, and thorough mastication, was impressed upon the mother, and the diet was regulated by a definite diet-list which excluded all rich and indigestible dishes, and limited the daily quantity of nitrogenous food. Directions were given regarding bathing, friction to the skin, and mental and physical exercise pushed to a point involving slight fatigue. The bowels were kept in normal condition by a suitable laxative. As the medicinal portion of her treatment, she was placed upon nickel bromide, a remedy which had been recently introduced, and which was highly recommended where the usual bromides failed. Fowler's solution in moderate doses was conjoined.

This treatment was continued one year, during which time the attacks ranged from two to nine per month. At the end of that time the stomach became intolerant, and the remedy had to be discontinued. Well-marked and undoubted improvement had occurred, but the nickel bromide acted as a depressant, and when it was dropped it became necessary to substitute active tonic measures. Under tonic treatment, but with no change in diet or hygienic surroundings, the number of attacks was increased to thirteen per month.

It was at this time, April, 1886, that I chanced to find in the *Boston Medical and Surgical Journal* an article written by Dr. Charles F. Folsom, in which he claimed that borax is of great value in some cases where the bromides fail. The usual remedies for epilepsy had been tried in this case, and had not succeeded to anything like the desired degree. As it was impossible to leave the patient in the condition in which she was at that time, I adopted the suggestion, and resolved to give so simple a remedy a fair trial. I must confess that I had little hope of good results. Other rules remained as before; but instead of the nickel bromide I substituted borax gr. x, with tr. cardamom. comp. ʒj, in water, one and a half hours after meals.

Improvement was immediate and marked. Four attacks occurred within the first ten days, and before she was well under the influence of the drug. Then followed a period of three months with no seizures at all.

This borax treatment has now been continued for three full years, and the results are as follows: The attacks have greatly diminished, both in number and severity. There have been periods of complete immunity, extending over several months at a time, a thing before unknown and unhoped for. When attacks did occur there were but one or two during the month, usually to be traced to some slight error in the diet, or to hastily eaten meals. The greatest number of attacks in any one month has been four. There has been uninterrupted physical and mental development, and instead of the flabby, chlorotic, stupid girl, she has become a robust and vigorous woman. Menstruation is regular in interval and amount, and unattended by neurotic disturbances. Headache has almost entirely disappeared. She no longer shuns society, but mingles with others freely and without distrust of herself. Her judgment can be relied on. Under the instruction of a private tutor she is rapidly making up for lost time. It is now six months since the last attack, and her mother considers her, to all intents and purposes, well.

In narrating the history of this case, it is not the purpose of the writer to claim any brilliant results. It will be conceded that the family history, the mode of development of the disease, the time of life at which it developed, and the failure of the most approved methods of treatment to make any marked impression upon the case, all combined to render the prognosis unfavorable in the extreme. And with this poor outlook it is enough to claim that the disease, which had formerly controlled the physical, moral, and mental life, has been thoroughly subordinated and the opportunity offered for normal growth in all directions. This has undoubtedly been achieved.

The remedy is but little known, and rarely used in the treatment of epilepsy. In standard works bearing upon the subject allusion is made to it in scanty terms, or, as is far more frequently the case, it is not named at all. It is not probable that it will ever be used where the bromides are effective, as they undoubtedly are in the majority of cases, but it seems to be of special utility where the bromides prove useless and the patient is in danger of being left, comparatively without help, to the deleterious influence of the disease.

This remedy possesses advantages in that it does not act a depressant, and, when given in the manner indicated, does not cause gastric disturbance. Occasionally a slight, scaly eruption is noticed, which can be readily controlled by small doses of Fowler's solution. The dose may be increased to gr. xx, though in the case reported it has never been necessary to exceed the half of this quantity.

I have had under observation for the past four months another patient with whom also the bromides disagree. Under similar treatment there has already been great improvement, but it is, of course, too soon to report anything of definite value.

3416 BARING STREET.

ASTHMA DUE TO FUNCTIONAL DERANGEMENT OF THE STOMACH;

With Remarks upon Treatment.

BY W. W. VAN VALZAH, M.D.,
AND
CHARLES R. CRANDALL, M.D.,
OF NEW YORK

THE following case of bronchial asthma is one of more than usual interest, owing to its causation, severity, and duration. It illustrates, in the most marked degree, to what extent indigestible foods, acidity and fermentation, distention of the stomach and bowels with gases, and the absorption of morbid material into the blood, may cause prolonged and terrible asthma in one predisposed thereto.

This form of causation is far more common than is generally believed, and has not received the attention it deserves. While nearly all authorities admit that paroxysms of asthma are due to some reflex irritation, at the same time but little stress has yet been laid by any of them upon the fact that the seat of trouble is most commonly located in the stomach, or in the bowels, or in both. One distinguished author of an elaborate work on *The Practice of Medicine*, simply mentions, in a chapter eleven pages long, on asthma, that "indigestion, in some cases, proves an exciting cause oftener than anything else." Whereas, it would have been more nearly correct to say that improper food and functional or catarrhal disease of the stomach and bowels are more often the cause of paroxysms of asthma than *all* things else. With a view to the need of impressing this important truth, it is believed that there is no necessity of apologizing for presenting an illustrative case, and a few practical details of successful treatment that have now been applied to many cases.

CASE.—Mr. L., aged forty-eight years; manufacturer and merchant. In early life he was considered frail and not well constituted. In boyhood he lived on a farm but was not well; suffered more or less from fever and ague. At the age of nineteen he went into the army, but was soon taken sick; army food seriously affected his stomach and bowels, and later he had typhoid fever. He was subsequently wounded in a battle and was sent North for treatment; here he was stationed at David's Island, where a good climate, plenty of exercise, and a meat diet restored his health, and he increased in weight to 180 pounds. After serving four years in the army he went to Westfield, Mass., and engaged in manufacturing. His health remained fairly good for three years, at the end of which time bronchitis developed and was accompanied by more or less asthma. At the same time he began to suffer from

indigestion, flatulence, and pain in his bowels, all of which obliged him to live on a light, restricted diet. The asthmatic attacks gradually increased from an occasional slight attack quickly relieved, to those lasting six weeks at a time, which nothing would relieve. During these long periods he was obliged to sit up all night, using every available remedy and receiving the best treatment then known. Under such suffering his general health declined, and his weight was reduced to 140 pounds. Finally, he had an attack of pneumonia, which prostrated him still more. When sufficiently recovered he took a trip to Florida and was gone four months, but was not benefited. Then he gave up business and went to New York for treatment at the hands of the most renowned men in the profession.

Despite the best treatment to be had, asthma prevailed in its worst form, and his sufferings became so severe that it was thought he would die. In this condition he was taken to Montclair, N. J., where the climate agreed with him and improvement ensued. It is worthy of note that during all this time he had pain in his stomach and over the liver, and suffered from indigestion. These symptoms were, however, considered secondary instead of primary. After improvement took place he went home to Westfield, only to be stricken again with the severest asthmatic paroxysms. Later he started for Maryland, hoping to obtain relief, but grew rapidly worse, and returned to New Brunswick, N. J. Here he found comparative comfort and settled down for a year. Having, as he supposed, recovered as far as possible, he returned again to Westfield, but on the second day was stricken with even greater severity. For three days he coughed, raised, struggled, and gasped, until he almost died, aud longed for death to relieve him. In this condition he was taken from home to New Brunswick, N. J., almost dying on the way, but was rewarded with gradual relief. These attacks were so severe that they resisted every known remedy and the best medical skill that could be obtained.

Finally, in the year 1874, he went to Denver, Colorado, to live, and at first was benefited by the change. After a time his chronic bronchitis seemed to grow worse, but the asthmatic paroxysms were less frequent, and at no time was he ever free from suffering. As a rule, he has had from three to ten paroxysms a day, and has been obliged to make daily use of pastiles and sedatives. As Denver became more densely settled, he felt the ill effects of the increased amount of dust and smoke, and was compelled to make frequent changes. Usually he spent the spring and fall at Manitou Springs and there found some relief, but never immunity. While at these springs he drank copious quantities of alkaline waters, the general effect of which was beneficial. It was his practice in the summer months to go to Estes Park, in Colorado, 7500 feet above the sea, and there spend several weeks. In this place he also found some relief; but, nevertheless, had some of the worst attacks he ever had; these, too, in the supposed most favorable climate in the world for asthmatics. He was never able to see that high altitudes were specially beneficial to him, but in a general way the Colorado climate agreed with him better than an eastern climate, although in the former he experienced at times the worst suffering he ever knew.

It is to be borne in mind that at no time was he free from bronchitis and asthma; he had asthmatic breathing all the time and extreme paroxysms every day and night, which he had to relieve by burning pastiles and taking sedatives, mostly bromides and chloral. Every little while he would have terrible asthmatic spasms, during which it seemed as if he must die. The slightest change in the atmosphere, the irritation of smoke and dust, the eating of certain foods, and even peculiarities of soil, would throw him into a paroxysm. Upon one occasion, when with a party of friends in the mountains, he had such suffering that he was given up to die and the party went into a consideration as to how they should get his remains back to Denver. At another time he was riding with a friend and was taken in a similar manner. He soon became helpless and speechless, struggled violently for breath, grew purple in his face, and the blood flowed from his nose. The friend, frightened beyond measure because of the apparent imminence of death, began to discuss the ways and means of clearing himself of the possible charge of murder. On still another occasion a paroxysm came on, preceded by pain and contraction in the bowels. The asthmatic symptoms became of the most agonizing character, accompanied by blueness of the face, nose-bleed, and complete prostration. The spasm in the abdomen increased until there followed functional paralysis and complete loss of power over both bowels and bladder and it seemed as if he must die in a short time. When *in extremis* and about breathing his last, the spasm relaxed and he gradually regained himself. During these severe attacks there was always the violent wheezing and gasping for breath, the helplessness and speechlessness, the turning black in the face, the flowing of blood from his nose, and he would seemingly go to death's door. The violent struggles for breath would bring on heart failure, cyanosed color of the face and head, cold extremities, and every other indication of extreme depression and irregularity of circulation. Prolonged suffering and the almost constant use of sedatives tended to break down his nervous system and impair the action of his mind. He became very weak, his mental faculties began to fail, as shown by dulness of mind and loss of memory. So constant had been his asthma and suffering that he had come to be known as "the worst asthmatic in Colorado."

All this, despite the fact that he was supposed to be living in the most favorable climate in the world, was using every remedy and means that promised relief, had had the advice of about twenty different physicians, many of whom were the most celebrated in the land and some of the number renowned specialists. An intensely interesting feature of this history is the fact that from first to last he suffered from indigestion, flatulence, and great distention from gas, but its significance was never recognized.

Every severe attack was preceded and accompanied by distress and fulness in the stomach and bowels, and yet these were supposed to be of secondary importance.

When he came under treatment his condition was most pitiable. His skin was pale and dingy, he looked tired and exhausted, his chest was drawn out of shape from so much struggle for breath. He only weighed 128 pounds, and he was so weak that he could walk but a short distance. He was having several asthmatic paroxysms both day and night, and was expectorating about a teacupful of tough, frothy mucus in twenty-four hours.

Physical examination showed that he was greatly wasted in flesh and his chest was more or less out of shape. Auscultation detected the presence of coarse sonorous and fine sibilant râles, seemingly in every bronchial tube and air-cell. The breathing was emphatically asthmatic in all of its characteristics. Percussion note was hyper-resonant all over the chest both posteriorly and anteriorly. The heart was found to be so weak that its sounds were scarcely audible; it appeared to be worn out and feeble from prolonged overwork. Abdominal inspection and palpation revealed the presence of a large amount of gas in the intestine and tenderness over the stomach and lower margin of the liver.

Microscopic study of the blood showed that the red corpuscles were pale, shrunken, and poorly nourished, and that its integrity was further impaired by the presence of a great amount of fibrous filaments. These were beginning to degenerate and mass together without definite outline, as is the case where the fibrous structure of the bronchial tubes is about to break down. There was present also a moderate quantity of yeast germs, the product of fermentation in the stomach and bowels.

The sputa amounted to nearly a teacupful in twenty-four hours, and in consistency was thick, jelly-like, and frothy. By microscopic examination it was found to contain shreds of stringy mucus, epithelia, numerous cells and crystals, and other morbid material. It was in all respects typical of the advanced stage of the worst form of asthma.

Urinary analysis gave important and interesting data. The amount passed was very scanty, so much so that the patient had noticed the fact. It was very heavy, having a specific gravity of 1034; there was a great excess of biliary coloring matter and phosphates. The reaction was highly acid; there was no sugar or albumin. In a general way the urine tended to show that the patient's digestion was greatly out of order, and that there was excessive nerve waste.

In order to find out what to do, and to obtain a clear conception of existing conditions, it was necessary to "work up the case" with exceeding care. Of course, it was easy enough to diagnose bronchial asthma, because every characteristic of the disease was on constant exhibition. The greater object, however, was to diagnose the cause and to understand thoroughly the relations existing between cause and effect. Therefore, besides investigating all of the signs and symptoms of the disease, as is ordinarily done, the more strictly analytic method, consisting of a study of the products of the system, was adopted. This necessitated, as already seen, a microscopic study of the blood and sputa, and repeated examinations of the quantity and character of the urine. These methods, *diligently and persistently employed*, were the only ones that could afford a clear, accurate, and definite understanding of the extent and manner the organs were performing their functions. It was, indeed, the *only accurate means of determining* to what extent the stomach was digesting food; to what degree the liver and kidneys were doing their work; and just what quality of blood was being made. The information thus obtained from the history and subjective symptoms, and by a repeated study of the blood, urine, and physical signs, tended to show that the real source of asthma was in his stomach. Not only that, but the evidence so obtained also tended to verify the fact, noted in many similar cases, that asthma, with all its attendant spasms and suffering, is more often due to functional or catarrhal disease of the stomach or bowels, or both, than to anything else. Like all other chronic diseases, it is dependent upon conditions constantly prevailing, and, in the majority of instances, these are seated in the gastro-intestinal canal, where, as has been said, "the health of the whole body is tempered." Moreover, as will be seen farther along, the result of the treatment was to sustain the conclusions deduced from the history of the case and the methods of diagnosis that were employed.

Having thus fixed upon the seat of the disease, the first rational thing to do in the line of treatment was to obviate one of the evident causes by dispensing with all fermentable foods, such as vegetable, starchy, and saccharine articles, substituting those that would not readily ferment, and employing remedies calculated to restore normal digestion. Past experience in many similar cases had established the fact that the food best calculated to meet this indication was an animal diet in the form of prepared muscle pulp of beef.

Consequently the patient was directed to avoid the fermentable articles of food mentioned above, and to limit himself for a time to a strictly meat diet, consisting of beefsteaks, mutton-chops, and the tender meat of game and poultry. Later he took the prepared muscle pulp, of which he soon ate large quantities with a good appetite and keen relish. With a view to aiding temporarily the stomach to digest his albuminoid diet, he was given a few grains of pepsine after each meal. The change of diet was promptly followed by a disappearance of acidity and flatulence, and distention of his stomach and bowels, and as soon as this was accomplished he began to note more comfort in his breathing. As might be expected, the old asth-

matic habit was rather loath to leave, especially in New York climate. It was necessary, therefore, at first to relieve his urgent spasmodic symptoms, and so he was given a combination of ethereal oil and chloroform, fifteen minims of the former and two of the latter, to be taken as he needed. In a short time, however, he became so generally relieved that he was enabled to dispense with sedatives and to sleep comfortably all night—a thing he had not done for many years.

As was stated before, his nervous system was worn out from prolonged suffering, the fibrous structure of his lungs had undergone great thickening, and his heart was so weak that its sounds were almost imperceptible. To meet these indications he was given a supporting alterative tonic, composed of cinchona, damiana, and nux vomica, to which were added five grains of English iodide of potassium. For a direct heart tonic he was prescribed one-sixtieth of a grain of digitalin every four hours. Inasmuch as he grew stronger rapidly, digitalin was soon withdrawn. He had taken all of these remedies before, as well as many others, but to no avail, for the reason that the real cause of his asthma had never been removed.

It is interesting to note, too, that none of the usual "asthmatic sedatives" and expectorant remedies, like grindelia, opium, bromides, chloral, lobelia, squills, and ipecac, were employed from first to last. Medicines were adhered to only in so far as they relieved spasmodic action, improved the powers of digestion, sustained the action of the heart, and increased the power of the nervous system. The conviction adhered to was that a removal of the cause would be followed by a removal of the effect, and time verified both the conviction and the prophecy.

In addition to the few remedies used he was advised to drink a pint of hot water two hours before each meal and upon going to bed. The object was to cleanse his stomach of mucus, to stimulate the secretory and excretory glands, and thus to eliminate all morbid material from his system. The hot water accomplished this desired effect, as shown by the elimination found in the urine, and by the rapid improvement that ensued. Besides, the hot water proved to be very grateful to his system, as it caused a warm glow and free action of the skin.

As a result of removing the cause and adopting the principles of treatment above outlined, improvement was prompt and rapid. In less than a month his asthmatic spasms had almost passed away, and, although in a climate that formerly caused intolerable distress inside of twenty-four hours, he was more uniformly comfortable than he had been for many years. Using his own words, written one month after he came under treatment, "At first I had a great deal of asthma, but it has gradually grown less, and I am now having less in New York than in the most favored locality in the mountain parks of Colorado."

In addition to the great improvement, or rather subsidence, of the asthmatic symptoms, there has been a corresponding gain in his general health. His blood has vastly improved, as shown by the decrease of morbid material and increase in the number, size, and color of the red corpuscles. His urine is much greater in quantity, is practically free from phosphates and biliary coloring matter, and has a specific gravity of about 1015. His heart is much stronger, and the sounds are again well defined. His appetite is so good that he craves nearly a pound of animal food at a meal; and, best of all, is now able to digest and assimilate such a large amount. And his nervous system has been so far restored that his memory is displaying marked improvement. All of his faculties are regaining their finer sensibilities, and he is enabled to sleep quietly and soundly during seven or eight hours every night.

BLACK OXIDE OF MANGANESE IN DYSMENORRHŒA.

BY CHARLES E. SCOTT, B.S., M.D.,
OF WICHITA, KANSAS.

I DESIRE to call attention to the use of the binoxide of manganese in those cases of dysmenorrhœa characterized by a more or less scanty menstruation, associated with pain, and which are *not* complicated with any well-definable local, inflammatory, or organic lesion to which can be traced the cause of the abnormal menstruation.

We are told by most of our best authorities that nothing can be done in the treatment of menstrual disorders by the administration of drugs, that they are of doubtful utility, and that in their stead we should resort to local treatment, tonics, and the enforcement of a strict hygiene. That there are certain conditions in which, by the proper differential diagnosis, we can, with great benefit, use certain drugs, I will try to show by calling attention to two selected cases.

CASE IV.—K. C., aged twenty-three, married; multiparous. Had always been in good health. Began menstruating at seventeen, and was regular up to two months before consulting me, at which time she had gone out while menstruating. The day was damp and disagreeable; she got her feet wet, and on returning home discovered that her menstruation had ceased. She suffered somewhat at the time, but felt well in a day or so. On the arrival of the next period she had severe dysmenorrhœa, with scanty flow. The same *rôle* of symptoms was repeated, with increasing severity, for the next two or three months, when she could stand the suffering no longer, and consulted me. I could find nothing the matter with the uterus to warrant such a state of affairs, and ordered black oxide of manganese gr. iv twice a day, half an hour after meals, for the next thirty days. Her next period arrived, and she was free from all disagreeable symptoms. I continued the black oxide for the next two months in two-grain pills, since which time (nearly a year) she has taken no medicine for this trouble, and now she menstruates regularly and is free from pain.

Case VIII. was a lady, unmarried, aged nineteen, rather anæmic. Began menstruating at fifteen; never had been "regular," and the periods were associated with much pain; so much so, in fact, that she was compelled to go to bed a day before the flow appeared and remain there until its cessation, resorting to anodyne applications and morphia hypodermatically. Her flow would occur every two or three weeks, lasting for from three to five days. Did not obtain permission for local examination, but she complained of slight leucorrhœa the day after her menstruation had ceased, also had slight ovarian tenderness over left ovary. I prescribed elix. quin., ferri et strych. three times a day, also two-grain pills of the black oxide twice daily, to be given as in the preceding case. Under this treatment her condition improved very much in the next sixty days, when I ordered the elixir to be discontinued and retained only the black oxide. The latter was continued another sixty days, when it, too, was left off, and she now (and for the past four months) is menstruating regularly, and is free from pain.

I might enumerate several other cases in which the binoxide has been used with equally gratifying results, but these two will suffice. Allow me to add, however, that during all the time that my patients have taken the binoxide they did not complain of any disagreeable symptoms arising from its administration.

Before resorting to the manganese, I had been in the habit of advising the use of the permanganate of potassium, but the unpleasant symptoms arising from its use were too constant, and I am glad to say that in the manganese dioxide we have a remedy which, in an experience of over forty cases, has failed to show any unpleasantness.

407 East Douglas Avenue.

HOSPITAL NOTES.

JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA.

Service of J. M. Da Costa, M.D.

(Reported by E. P. Hershey, M.D., Clinical Assistant.)

GUSTATORY PARALYSIS (PERIPHERAL).

E. H., ætat. thirty-nine, domestic. Noticed, three months ago, that articles of food, save those that were pungent and affected the olfactory nerve, were tasteless. She first observed that cream had no taste; soon after, sweets. From a general survey of the patient we find that she is not anæmic, has a good color, and her bowels are regular. Her tongue is red at the edges. No blue line on the gums. Has occasional headache, but always assignable to a cause. Has a poor appetite, which she attributes to the fact that food has no taste to her. She is not hysterical.

Testing the sense of taste: with a camel's-hair brush, we paint the tip and posterior portion of the tongue with a solution of saccharin, impressing upon her mind that it is bitter; she does not perceive the sweetness. Next, upon the same portions we paint a solution of strychnia (gr. j to ℥j) with no effect. On the sides of the tongue we paint an acid—dilute acetic acid—and a saturated solution of sodium chloride, neither of which was tasted. We thus have demonstrated the entire absence of the sense of taste. This is very rare; but it is necessary for us to look further, and see if we can find a loss elsewhere. The vision is good, the eye-grounds are normal; no weeping. Hearing is good. There is no palsy of the muscles of the face. She is able to whistle, the muscles called into play being normal. There is no deviation from the median line when the tongue is protruded. Sensation, tested with the æsthesiometer, is normal, both in the track of the supra- and infra-orbital nerves, and on the tongue.

The question that arises is, What nerve or nerves are involved? The lingual branch of the fifth cranial nerve is the one that has most to do with the sense of taste; it supplies the papillæ and mucous membrane of the tongue. The glosso-pharyngeal supplies it with power of motion; this nerve goes to the back of the tongue, and supplies it with sensation. The hypo-glossus need not be considered The lingual branch of the fifth goes to the anterior two-thirds of the tongue, and the chorda tympani is joined to this lingual branch. Were the lesion in the glosso-pharyngeal, the loss of taste would be at the back of the tongue only. Were it in the lingual branch of the fifth, the anterior two-thirds of the tongue alone would be affected. Assuming that both the lingual and glosso-pharyngeal are affected, there would necessarily be impairment in motion, but this does not exist. Again, assuming that the lesion lies in the floor of the fourth ventricle, where the nerves come together, other nerves that have their origin there would show signs of change. Taste is the only part of the fifth nerve affected.

One other point to be considered is, Does the lesion lie in the cortical centre of taste? This centre is a very small spot, and should it be the origin of the disorder, unquestionably the olfactory nerve would be involved. The loss of taste is due to peripheral causes.

Treatment.—Galvanism, five cells, one electrode to the back of the neck, the other over the tongue. In order to stimulate the nerves she will be given strychnia sulph. gr. $\frac{1}{60}$ t. d. Also a stimulating mouth-wash of capsicum.

The patient, three months after treatment, had partly regained taste, her general health is good, but her food is still more or less tasteless. The case is yet under observation.

MEDICAL PROGRESS.

Saccharin for Aphthæ.—Since it has been established that saccharin possesses the properties of counteracting intestinal fermentation it has been largely used as an antiseptic remedy. Dr. Maurice Fourcier, states in the *Revue Gén. de Clin. et de Thérap.*, No. 11, that he has used it successfully in treating ten cases of aphthæ, the affected parts being painted with a saccharin solution. In eight cases the affection disappeared in from twenty-four to thirty-six hours; only in two cases did the time required for a cure extend over three days, which was due to the imperfect application of the remedy.

The following is the solution used by the author:

℞.—Saccharin . . . . . 1 part.
Alcohol . . . . . 50 parts.—M.

A coffeespoonful of this is added to a wineglassful of water and the affected parts painted with the solution five times daily. A concentrated solution should not be used, as it might prove harmful. The druggist who prepared the above solution tested the same frequently by dipping his finger first into the mixture and then into his mouth. On the evening of the same day he observed a sensation of burning in his entire buccal cavity, which on the following day was covered with an aphthous eruption; these latter lasted five days, when it disappeared without treatment.—*Wiener med. Presse*, No. 15.

Diphtheria treated Antiseptically with Quinoline.—DR. DORNAT (*Gazette hebdom.*, April 19, 1889,) recommends quinoline for the treatment of diphtheria of the mouth and throat. It can be used locally in the form of gargles or by direct applications.

As a gargle the following formula is recommended:

℞.—Quinoline . . . . . grains x.
Alcohol, 90 per cent. . . . ℥j.
Water (distilled) . . . . ℥jxss.
Essence of mint . . . . gtt. j.—M.

Direct application—the following to be applied with a camel's-hair brush (not too soft) to the surface of the pseudo-membranes:

℞.—Quinoline . . . . . grains xv.
Alcohol, 90 per cent. } . . ää ℥vjss.—M.
Water (distilled) }

Antipyrin, Diabetes, and Cataract.—The interesting communication made by DRS. GERMAIN SÉE and GLEY at the Academy of Sciences in February last on the results with antipyrin on diabetic patients, induced M. Panas to try the efficacy of antipyrin in the treatment of diabetes in connection with cataract. Two persons were treated by him: one a man aged thirty-eight, affected with bilateral cataract of two years' standing, and who was at the same time diabetic; the other was a woman of seventy-three years, of a delicate constitution, diabetic for six years, very nervous, and who presented a double cataract, that in the left eye being complete. After the administration of antipyrin in doses of 45 grains per day during one week, the sugar fell from 5 drachms to 1 drachm. It was under these conditions that M. Panas proceeded to operate for cataract, at the same time recommending the patient to continue to take 30 grains of antipyrin per day. From these cases M. Panas concluded: 1. That antipyrin possessed an antiglycogenic action both prompt and efficacious. 2. That it has succeeded in those cases in which neither the diet nor the drugs employed had succeeded in reducing the proportion of the glucose below a given quantity. 3. That for it to be efficacious it is necessary that the daily dose at first should consist of 45 grains. 4. That the effect became evident even when the patients were allowed to continue a moderate proportion of farinaceous substances. Dr. Albert Robin, well known for his researches in connection with antipyrin and other drugs of that class, said that he did not believe that one could distinctly say that antipyrin did not suit such or such diabetic patients, but when the treatment is commenced, the appearance of certain symptoms should be an indication to suspend the remedy without delay. He then named the indications and contra-indications of antipyrin in the treatment of this affection. In conclusion, he said that antipyrin can render the greatest service to a very large number of diabetic subjects, and it is destined to take an important place in their treatment; but, like all active drugs, it is a two-edged weapon, which one ought to know how to handle with ability, and which it would be imprudent to employ indiscriminately in all cases.—*Lancet*, April 20, 1889.

Hyoscin.—DR. OTTO DOMBLUTH (*Berliner klin. Wochenschr.*, No. 49, December 3, 1888) reports the results of the use of hyoscin in the treatment of the insane in the asylum at Brieg, in the district of Breslau. He employed usually, and exclusively in his later practice, the hydrochlorate, giving it by subcutaneous injection in doses ranging from 0.2 to 1.5 mgs. (or from about $\frac{1}{500}$ grain to $\frac{1}{60}$ gr.) and administered by the mouth in doses of $\frac{1}{120}$ to $\frac{1}{32}$ of a grain. He found the former method in every way the most effective, and he gives a table showing the comparative effects of different doses administered in both ways, in various forms of insanity. For example, in sixteen cases of epileptic insanity, out of fifty-nine injections of hyoscin in quantities varying from $\frac{1}{500}$ to $\frac{1}{125}$ grain, only four were ineffective, and in fifty-one complete quieting of the patient for twelve hours or more was obtained, while with doses of from $\frac{1}{64}$ to $\frac{1}{32}$ grain given by the mouth over 25 per cent. were failures. The inconvenient symptoms of temporary paralysis, disturbance of accommodation, etc., were also more pronounced after hypodermatic doses, but in no case were sequelæ observed that called for special caution in any one direction. The appetite was never disordered, and he did not find any increased tolerance of the drug requiring increasing doses, even after it had been used a hundred times or more. Contrary to the experience of Kuhlwetter (*Irrenfreund*, 1887, No. 7), the author found that in his cases the injections were not especially painful.

Dr. Dombluth found that distinctive tendencies were only diminished by the drug in the acutely agitated patients, but that untidy habits were usually benefited by it. In closing his paper he shows that, owing to the smallness of the dose required, its employment is not at all counterindicated by its high price.—*American Journal of Insanity*, April, 1889.

Naphthol and its Administration.—This drug can be administered in the form of lotions, mouth-washes, injections, liniments, and antiseptic as well as disinfectant lotions. Camphor and alcohol are the best vehicles for its administration.

1. *Lotions.* The following formula is the best:

℞.—Naphthol β . . . . 1 part.
Alcohol 60° . . . 1000 parts.—M.

To be applied to regions covered with hair which one desires to render aseptic.

Or:

℞.—Naphthol β . . 10 to 15 parts.
Alcohol 60° . . . 1000 " —M.

This forms a stronger solution, and is used to render aseptic denuded cutaneous surfaces.

2. *Injections.* This solution is to be prepared by heat and to be kept at a medium temperature. Before using

it the syringe should be warmed. The following is the formula:

℞.—Naphthol β . . . . 10 parts.
Alcohol 90° . . . . 80 "
Water (distilled) . . . 120 " —M.

3. *Mouth-washes.* For toilet purposes a few drops of the following should be added to a glass of water:

℞.—Eau de Botot . . . . 600 parts.
Naphthol β . . . . 1 part.—M.

4. *Liniments.* For this purpose camphorated naphthol is used; this is obtained by triturating the following until a liquid is obtained:

℞.—Powdered camphor . . 2 parts.
Powdered naphthol β . . 1 part.—M.
—*Gazette hebdomadaire*, April 19, 1889.

Milkmaid's Cramp.—DR. REMAK was recently enabled to bring a case of true milkmaid's cramp before the Medical Society of Berlin. This malady was originally described and classified by Basedow. It is a form of muscular incoördination analogous to that of writers, ironers, and cigarette-makers, and involves principally the median and superficial nerves. In Dr. Remak's case both hands were affected with spasmodic contractions on attempting any kind of movement, but particularly that of prehension. The patient had for some weeks been obliged to milk uninterruptedly for several hours daily, and is now quite incapacitated from following her occupation. As a general rule, the symptoms take a much longer time to develop.—*Medical Press*, Feb. 20, 1889.

Œdema as a Diagnostic Sign in Carcinoma of the Stomach.—DR. C. BAERT, of Brussels, writing in *La Clinique* on cancer of the stomach, calls attention to the frequency with which œdema of the ankles is met with in this affection after it has lasted a few months—a diagnostic aid which is by no means new, but is, he thinks, in danger of being too much overlooked at the present day. He gives a number of cases recently occurring in the various hospitals in Brussels in which œdema was present. In one of these cases the œdema came on as early as three months after the first symptoms of the affection made their appearance; in two other cases it was noticed after four months; but in most of the other instances it was delayed till the lapse of from six months to a year after the onset. In one case, where there was no evident cause to which to attribute the loss of appetite and the wasting complained of by the patient, Professor Carpentier, noticing some œdema of the ankle, diagnosed carcinoma of the stomach, and found his diagnosis confirmed by the appearance a month afterward of all the usual signs of the affection. Several of the cases presented a marked increase in the nitrogen excreted in the urine. With regard to the deficiency or absence of hydrochloric acid in the stomach in cancer of that organ, M. Baert admits that it is usual, but agrees with Wolff and Ewald in saying that this sign is by no means peculiar to cancer, as it is found in other gastric affections.—*Lancet*, April 13, 1889.

The Treatment of Sciatica by Local Freezing of the Skin.—This mode of treatment has been recommended by Dr. Debore, who sprayed the affected surface with methyl-chloride. This drug as well as Dr. Debore's apparatus being somewhat difficult to obtain, DR. MILOTTI has proposed the use of sulphuric ether applied with a Richardson spray; the results were very satisfactory.

Professor Ughetti, of Catania, succeeded in curing six or seven cases of sciatica by this method. Dr. G. Alonzo reports in the *Riforma medica*, No. 53, the case of a thirty-two-year-old woman, a sufferer from severe sciatica, who, after receiving three applications of the ether spray, felt much improved and was enabled for the first time in many months to obtain a refreshing sleep. After the further application of six sprayings she was well able to walk about—in fact, was entirely cured. The duration of each application was from twelve to fifteen minutes, the quantity of ether necessary for each séance amounting to something like six and a half ounces. Dr. Alonzo regards the application of this remedy as of great therapeutic value, and thinks it should not be omitted in a single obstinate case.—*Wiener med. Presse*, March 24, 1889.

The Disinfecting Action of Steam.—According to some new researches made by VON ESMARCH on the action of steam as a disinfectant, it would appear that the effects in relation to the destruction of bacteria depend not so much upon the temperature as upon the degree of saturation of the steam. If there is air with it, the power of destroying organic germs is very much diminished. Thus, in experimenting on the spores of malignant pustule, von Esmarch found that, while superheated steam which was not in a condition of saturation at a temperature of 248° F. was unable to destroy the spores in half an hour, saturated steam at 212° F. destroyed them in from five to ten minutes.—*Lancet*, April 13, 1889.

Picric Acid in the Treatment of Erysipelas.—DR. CALVELLI (*Revue Gén. de Clin. et de Thérap.*, March 28, 1889) writes that he treats erysipelas by painting the diseased surface five or six times daily with the following solution:

℞.—Picric acid . . . . 23 grains.
Water . . . . . ℥viij.—M.

Combining with this internal injections of quinine he obtains diminution of the swelling and pain in from twelve to twenty-four hours.

Antiseptic Sutures.—It would appear that there is a growing tendency amongst surgeons to restrict the use of catgut as a suture material, and revert, where practicable, to the more easily disinfected silk threads. The observations of Kocher (*Correspondenzblatt für schweizer Aerzte*, 1888) upon this subject cannot fail to prove of interest to the thoughtful surgeon. This distinguished observer has for a long time past tried experiments with a view to perfect the sterilization of animal tissues used for the purpose of sutures and ligatures—the fluid hitherto recommended by him for keeping the gut in being the essential oil of juniper—sutures prepared in this way being very nice and soft to handle, and in the majority of cases aseptic; but a series of cases in which the wounds did not follow an aseptic course suggested from their similarity a common source of infection, and a thorough revision of materials employed narrowed the

question down to the catgut used at the clinic for sutures and ligatures. A comparison being made with this catgut and sterilized silk showed that it was the former that was at fault. Kocher states that he has long been impressed with the difficulties in the way of rendering aseptic catgut and similar animal substances, as the fat in the interstices of the tissue prevents the thorough saturation by antiseptic fluids, and the tissue is unsuitable for the best of all sterilizing agents—viz., heat.

The well-known case of Volkmann, in which catgut which had been kept for months in a twenty per cent. solution of carbolic acid infected a patient with true anthrax, is perhaps the most significant observation in connection with this subject, and serves to accentuate the fact that a perfectly reliable animal absorbable ligature is yet to be found.—*Dublin Journal of Medical Science*, April 1889.

The Local Treatment of Diphtheria by Salicylic Acid.—The treatment advocated by D'ESPINE (*Revue Méd. de la Suisse Romande*, Jan. 20, 1889) has its *raison d'être* in the discovery by Löffler of the existence of a pathogenic bacillus in diphtheria, which, coming from outside the body, implants itself on the mucous surfaces and leads to the production of the characteristic membrane. The important point regarding the bacillus is, that the symptoms met with in diphtheria—prostration, low temperature, feeble circulation, hemorrhage, and albuminuria, are not due to the entrance of the bacillus into the circulation, but to the absorption of septic products which are formed at the points affected. An accompanying febrile condition is probably due to the passage into the circulation of streptococci, which are usually found in the false membrane along with the bacillus. D'Espine's researches support Löffler's views. He asserts that diphtheria is at first a local infection; that the false membrane is a sign of this, and not of an infection of the blood by microbes; and that the general symptoms are due to a septic intoxication of the blood, the septic products being formed and absorbed at the seat of the false membrane.

With E. de Marignac he has investigated the germicidal action of various drugs used in the treatment of diphtheria. Benzoate of soda (5–10 per cent.), chlorate of potash (5 per cent.), boracic acid (4 per cent.), sulphide of sodium (2½ and 5 per cent.) placed in contact with the bacillus for five minutes, did not arrest its growth; but corrosive sublimate (1 in 8000), carbolic acid (1 in 50), salicylic acid (1 in 2000), chloral (1 in 100), permanganate of potash (1 in 2000) gave a positive result. Of these the author prefers salicylic acid (1.5 or 2 per 1000), which in this dilution may be used freely. Some of the other germicides are not suitable except when used with a brush, on account of risk from absorption. The main points in d'Espine's paper may be summarized as follows:

(1) The diagnosis should be made early. This may usually be accomplished by examining microscopically a piece of the false membrane, and then by staining and finding the bacillus, which is slightly concentric in shape and about the same length as the tubercle bacillus, but two or three times as broad. After a time, the bacilli are difficult to find in the pultaceous mass, but then the appearance of the membrane itself is characteristic.

(2) Local treatment should precede and accompany general treatment, and the earlier it is used, the better is the chance of preventing the absorption of the toxic products of the bacillus. All the diphtheritic surfaces must be reached by the solution used. The mouth should be irrigated or syringed out with a solution of salicylic acid (1.5 or 2 per 1000) every hour or two hours, according to the symptoms, or the patient may gargle when possible, and several tablespoonfuls are to be poured into each nostril. Two or three pints of the solution may be used in twenty-four hours; but in the case of a child, where a large quantity may be swallowed, it is well to reduce the strength to 1 in 1000 or 1500. When, however, the false membrane is widely spread and thick, this treatment will not suffice. The patches must then be painted with something which will soften and disintegrate the membrane, and for this purpose citron juice, chloral and glycerine (1 in 5), corrosive sublimate (1 in 2000), carbolic acid (1 in 50), or papaine or papyotine may be used. Rough manipulation must be avoided, otherwise the irritation will increase the fibrinous exudation, and increased absorption will occur.

(3) Debilitating drugs should not be given; prostration must be treated by food, stimulants, and iron.

The results obtained from this treatment by d'Espine have been very satisfactory.

Salicylic acid may also be used as a prophylactic when diphtheria is prevalent, and in scarlatinal angina. In cases of tracheotomy in diphtheria, five or ten drops of a solution (1.5 in 1000) may be dropped into the canula every ten or fifteen minutes.

The author disclaims all idea of originality, except as regards method of irrigation. He quotes a number of opinions, both favorable and unfavorable, as to the efficacy of salicylic acid.

It is interesting to notice that some years before Löffler's discovery of the bacillus, a mode of treatment of diphtheria and scarlet fever on the same lines as that advocated by M. d'Espine in this paper, was recommended by Dr. Pownall, of Chorlton-cum-Hardy, in a letter to the *Lancet*. His formula was:

℞.—Salicylic acid	1–2 dr.
Gum tragacanth	1 oz.
Syrup	½ oz.
Tincture of orange . . .	½ oz.
Water	to 6 oz.—M.

A tablespoonful every two hours, alternately with iron, if necessary.

The drug being in suspension, has a local as well as a constitutional effect.

Iodine Applications in Erysipelas.—DR. TICHOMIROW, writing in a Russian military medical journal, recommends the employment of tincture of iodine as an external application in erysipelas, even in cases where bullæ have formed. He paints the iodine over the affected part and its vicinity three or four times a day. The irritation caused by the treatment is easily allayed by the application of a little camphorated oil. Usually he found a couple of days sufficient to reduce the infiltration and to bring the temperature down to normal. A similar mode of treatment he also considers very beneficial in cases of boils and carbuncle. Even after these have broken, he recommends that the iodine should still be applied, the wound being cleansed from pus and a dressing of cotton-wood applied.—*Lancet*, April 6, 1889.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MAY 11, 1889.

THE VALUE OF BINIODIDE OF MERCURY AS AN ANTISEPTIC.

THE conclusion reached by Koch, in his article on disinfection and antiseptics in the *Mittheilungen aus dem k. Gesundheitsamte*, vol. i., 1881, p. 264, that a single application of a very dilute solution, 1–1000 to 1–5000, of mercuric bichloride is sufficient to destroy the most resistant organism in a few minutes, and that a solution of 1–20,000 is sufficient, if the contact be prolonged, has given this substance a world-wide use in all branches of medicine, particularly because surgeons have practically found Koch's experimental deductions to be true.

Until recently, however, very few practitioners have recognized the fact, to which this same investigator called attention, and which has been particularly brought forward by his pupil Laplace in the *Berliner klinische Wochenschrift* for October, 1887; namely, that in the presence of albuminous substances an albuminate is formed with the mercury which renders the dressing useless, save in that it does not form a fruitful spot in which germs may multiply.

Klein (*Fifteenth Annual Report of Local Government Board*, 1886, p. 155) goes even further than this, and asserts that distilled water should always be the solvent used in making this preparation, since the salt may otherwise unite with proteids or other substances and become useless.

Although we are now accustomed to use tartaric acid in our antiseptic fluids in order to avoid such accidents, the danger of the formation of albuminates nevertheless exists to a considerable extent, sufficiently, at least, to warrant the use of other preparations of mercury, even if their antiseptic power be somewhat less than the bichloride, and if they do not bear similar relations to the albumins.

For some time past the biniodide of mercury has been thought of and been tried in this country and abroad. Recently, in a communication in the *Proceedings of the Royal Society of Edinburgh*, vol. xv. p. 235, DR. G. SIMS WOODHEAD has given the results of a series of experiments carried out with the red iodide of mercury, using as control tests the bichloride in solutions of the same strength as the more recently employed salt. The first part of his research was devoted to the determination of the action of albumins on these salts, ox blood being employed. The results reached indicate that Laplace and Koch are entirely correct in their statements, and that corrosive sublimate may be rendered useless in the presence of albumin, an insoluble precipitate of the albuminate of mercury being formed. On the other hand, the biniodide is entirely free from these disadvantages, albuminous solutions of this salt remaining clear for days. The solution is to be made by dissolving fifteen and a half grains of the salt with a slight excess of iodide of potash in thirty-four ounces of distilled water. Such a solution is stable, but is not one, in reality, of biniodide of mercury, but of the double iodide of potash and mercury.

Turning from this question to the effect upon germs, Woodhead placed the bichloride solution and blood in a dish exposed to the air, and also exposed in a similar manner and in a corresponding place the biniodide solution and blood. As a control experiment a third jar holding the same quantity of blood and distilled water was put alongside the others. At the end of six weeks there were a few micrococci and bacilli in the bichloride solution, its surface was covered by a luxuriant growth of *penicilium glaucum*, but there was no odor on stirring the liquid.

In direct opposition to this was the state of the biniodide solution, which was absolutely free from any change. In the control jar, of water and blood, the odor was exceedingly bad and the fluid swarmed with microörganisms.

By the addition of tartaric acid or common salt to a bichloride solution we increase its absorbability into the body and increase the danger of a systemic

effect. Here again, however, the biniodide excels the bichloride, for, as has been pointed out by CASH, in the *Local Government Board Report* (supplement), 1885, p. 186, guinea-pigs are much more tolerant of it than of the bichloride, while most pharmacologists agree that the lethal dose of the biniodide is nearly twice as great as of the bichloride. It is, however, worthy of note that should the former be taken in toxic dose none of the antidotes to the latter would be effective.

From these studies, therefore, we are in a position to make thorough trials of the biniodide as an antiseptic and to replace the bichloride with it if it prove practically useful.

Very recently DR. BERNARDY has used it in this city with very good results, and further trials will certainly be made. Woodhead has found, too, that such a solution is very useful in the preservation of specimens.

RESULTS OF FOOD AND DRUG INSPECTION IN NEW JERSEY.

THE salutary effects of the rigid enforcement of the laws of New Jersey for the prevention of the adulteration of food and drugs are shown by the Report of the Dairy Commissioner of the State for 1888. The amount of oleomargarine sold during the year has been very small, and the transactions in this article have been carried on strictly in accordance with the legal provisions. Milk inspection has covered all parts of the State, and the result shows the milk supply to be in excellent condition. Cases of adulteration of this article have steadily diminished, until in this year they have been fewer than ever before.

The examination of various foods and drugs has only recently been instituted, and consequently the deterring influence of warnings and prosecutions has scarcely had sufficient time to work a change in practices long in vogue. Of the numerous articles of food analyzed during the year, over forty-eight per cent. were found to be adulterated. It is true that the adulterants used are rarely injurious to health, but they are fraudulent, and the purchaser of sophisticated articles is not only deceived but he is robbed of a portion of his purchase money. The substitution of adulterated medicinal drugs for pure articles is a heinous offence, as it may place life in peril, and it should therefore be punished with extreme severity.

The people of New Jersey are to be congratulated upon the possession of laws against food adulteration and the efficient manner in which they are administered under the superintendence of Dr. Newton. In the absence of legislation on this important subject, Pennsylvania presents a striking contrast to her sister State. The legislature has recently ignored a plea for milk inspection for a populous section of the State and has also defeated a praiseworthy attempt to secure legislation against food adulteration throughout the Commonwealth. Comment is unnecessary.

THE Johns Hopkins Hospital, of Baltimore, was formally opened by the Governor of Maryland last Tuesday, in the presence of a brilliant audience, and this act marks an epoch in the history of medicine in this country. The munificent endowment of over three millions of dollars which the philanthropy of Johns Hopkins placed in the hands of his trustees; and their intelligent and careful management by which they have constructed and equipped this house of mercy without taking a dollar from the principal placed at their disposal, but actually increasing it by $113,000, have resulted in giving to the city of Baltimore a hospital which, in the excellence of its construction, perfection of its arrangement, and completeness of its appointments is without an equal on this continent, and probably in the world.

A full description of the seventeen separate buildings was given in THE MEDICAL NEWS of last week, and to-day we have the pleasure of laying before our readers the admirable address of Dr. Billings delivered at the formal opening. Dr. Billings is well qualified to speak of the hospital and its aims, for, from its very beginning, more than thirteen years ago, he has been the confidential adviser of the Trustees in the planning and construction of the hospital and in its organization.

The broad intelligence which has planned this hospital, its liberal endowment, and the character of work which it stands ready to perform, are sure to render it a potent factor in the advancement of medical science and of medical education in this country.

THE volume of *Transactions of the Congress of American Physicians and Surgeons*, held at Washington last autumn, has just been issued. It forms a very handsome octavo volume of 386 pages, and its publication has been ably supervised by the Secretary of the Congress, Dr. W. H. Carmalt, of New Haven. The volume contains the elaborate and able

papers on the "Diagnosis and Treatment, Medical and Surgical, of Intestinal Obstruction," by Drs. Fitz and Senn, with the discussion elicited, and on "Brain Localization and Surgery," by Drs. Mills and Park, and the discussion following by Drs. Starr, Ferrier, Horsley, Keen, and Weir. The concluding paper is the address of the President, Dr. Billings, on "Medical Museums." The volume constitutes a notable addition to our literature and is a fitting memorial of the meeting it records.

THE American Association of Genito-urinary Surgeons will hold their next annual meeting at Newport on May 21st, 22d, and 23d.

THE Twenty-second Annual Meeting of the Canadian Medical Association will be held at Banff, N. W. T., on the 12th, 13th, and 14th of August next, under the Presidency of Dr. George Ross, of Montreal.

The Canadian Pacific Railway Company has agreed to carry members and delegates and members of their families at the following rates: From points in Ontario and Quebec, to Banff and return at $95 each, including a double berth in sleeping car for each person, and meals in the dining cars on the way west from Montreal or Toronto and back, and four days' living at the Banff Hotel. The passage tickets will be made good from and to any points on the Canadian Pacific Railway, in either Ontario or Quebec, to Montreal or Toronto, but berths and meals will begin at these two places only.

Owing to the provisions of the Interstate Commerce Law, it will be impossible to get reduced rates from points in the United States, with the exception of St. Paul, Minn., from which the following rate is offered: $60 to Banff and return, including meals and sleeping car accommodation *between Winnipeg and Banff only*. Delegates from the United States are therefore requested to make their own arrangements between their homes and points on the Canadian Pacific Railway.

It is intended that the party shall leave Montreal on the evening of the 6th of August, by the regular Pacific express and arrive in Winnipeg on the 9th, and stop over one day there: leaving Winnipeg on the 10th of August, they will arrive at Banff early on the morning of Monday, August 12th. The meeting of the Association will then be held in the hotel on the 12th, 13th and 14th, after which the members of the party can either return at their convenience or take a trip to the coast, leaving early the following morning (August 16th), for which special terms have been arranged as follows: From Banff to Victoria and return, not including meals or berths, $20, or $30 including meals in the dining car and berths. The tickets for this excursion will be on sale at Banff to members and delegates and their families only.

The special tickets issued by the Canadian Pacific Railway to Banff and return will be good for sixty days, and the holders will be allowed stop-over privileges on the Canadian Pacific line at pleasure.

In addition to the members of the Canadian Medical Association a cordial invitation is extended to all members of the regular profession in good standing in the Dominion of Canada, the United States, and Great Britain, to whom the necessary certificates will be sent on application to Dr. James Bell, General Secretary, 53 Union Avenue, Montreal.

DR. HARRISON ALLEN, of Philadelphia, will deliver the next Toner lecture at the National Museum in Washington on the evening of the 29th of this month. His subject will be "The Clinical Study of the Skull, especially undertaken in Connection with the Morbid Conditions of the Jaws and Nasal Chambers."

A VINDICATION of the report made some five years ago of a Committee of the New York Academy of Medicine in the matter of the Paris diploma of Dr. Fordyce Barker has just come, in a most singular way, from the Sandwich Islands. Dr. Prince A. Morrow, in a letter to the *Medical Record* (April 28th), states that at Honolulu he met a Dr. George H. Trousseau, a son of the famous Paris physician, who, in narrating some reminiscences of his Paris life, mentioned having met at his father's dinner table Dr. Fordyce Barker, and he distinctly recalled his father mentioning there the fact that the Faculté de Médecine had conferred its diploma upon Dr. Barker. He also stated that he saw the diploma and, at his father's request, he personally carried it to Dr. Barker's hotel and left it there for him.

Dr. Trousseau said that it "was a matter of regret to him that he had not heard of the charge against Dr. Barker until many months after it was brought before the Academy, and thus had not the opportunity to refute it, which he would gladly have done."

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 2, 1889.

THE PRESIDENT, ALFRED L. LOOMIS, M.D., IN THE CHAIR.

DR. W. B. JAMES read a paper on

THE RELATION OF THE TUBERCLE BACILLUS TO ITS ETIOLOGY.

Having stated that the unity and specific nature of pulmonary tuberculosis had been established before the discovery of the tubercle bacillus in 1882, he proceeded to give a *résumé* of the conclusions Koch arrived at from his researches. In the seven years which had elapsed since this discovery, he went on to say, an enormous number of investigations had been carried on, and their results had been to confirm completely and establish the correctness of Koch's conclusions. It was also fairly well established now that the tuberculous process is capable of setting up inflammation in adjacent tissues which may be either acute or chronic.

By pulmonary phthisis he understood a tuberculous inflammation of the lungs, and he considered, therefore, any secondary and contributing cause or causes as unnecessary. Clinical experience taught that different individuals respond very differently to tuberculosis infection, and also that the same individual responds differently to it at different times. In this connection he referred to Trudeau's experiments with animals inoculated with tuberculous virus and exposed to different forms of environment, the results being very different in those closely confined in quarters with bad hygienic conditions, from the results in those allowed free exercise in the open air. In the dead-house of the New York Hospital he had been struck with the large number of individuals whose lungs presented lesions which showed that they had at one time been the subjects of phthisis and had recovered from it.

Whether or not any previous lesion of the lungs was necessary for the development of tuberculosis he did not think was established. The sum of clinical experience seemed to indicate that tuberculosis develops more readily when there has been such a previous lesion, but that in many cases there is no previous lesion whatever. The conditions on which tuberculous infection in any given instance seemed to depend are, *first*, the number of the germs, and, *second*, the condition of the microbes as regards vitality. Other things being equal, therefore, the greater the number of bacilli and the greater the activity of the virus, the stronger would be the chance of infection.

Another point of interest was in regard to the channel of infection. Our knowledge of the lymphatic system of the lungs was, unfortunately, very limited, and the question whether the infection was contracted by inhalation or in other ways, he felt compelled to leave untouched. To sum up, he said, the only factor necessary for the production of pulmonary phthisis is the bacillus tuberculosis or its spores.

DR. J. WEST ROOSEVELT read a paper on

THE RELATION OF THE TUBERCLE BACILLUS TO THE EARLY DIAGNOSIS AND PROGNOSIS OF PHTHISIS.

(See page 510.)

DR. JAMES TYSON, of Philadelphia, who had been invited to participate in the discussion, said that he was in entire agreement with his predecessor in the discussion, and remarked that it is now so generally conceded that the bacillus of tuberculosis is the essential cause of that disease, and especially of pulmonary consumption, that for some reasons it seemed scarcely worth while to repeat the argument therefor. It is, however, always important not to lose sight of the ground of adoption of any truth, and especially is this the case with truths in medica science; and the more so, of course, when the conditions are difficult to establish. It is further important to keep reasons fresh in memory, lest we grow to accept views too readily, for it is better to be brought up in a school of scepticism than in a school of credulity, although perhaps neither is desirable.

The conditions on which are based the belief that the bacillus is the cause of tuberculosis are exceedingly difficult to establish. So difficult, indeed, did they seem to him that for a long time he could not regard them as possible. He believed now, however, that they had been placed on a firm basis. The conditions referred to, which were doubtless familiar to most of those present, were those which are generally regarded as essential to establish that any vegetable organism is the cause of a given infectious disease. They are as follows:

1. The organism must be found in the blood or tissues of the infected animal, or in both.

2. It must be obtained from the blood or tissues in a state of absolute purity.

3. The organism, thus pure, must be capable of producing the same disease when introduced into the blood or tissues of an animal susceptible of it.

4. The same organism must be found in the blood or tissues of the second animal in which the disease has been produced.

These conditions, as he had said, he believed to be now fully established in the case of the bacillus tuberculosis. The second of these, the steps to the securing of which are by far the most difficult to carry out, has been secured by the culture processes now brought to a state of such high perfection. Without going into further detail, he would simply say that the methods followed by Koch in relation to tuberculosis were beyond criticism, and, he thought, were now generally allowed.

But it is plain also, he went on to say, that the establishment of the proposition that tuberculosis is thus caused does not preclude its being caused also in some other way, and in consequence of this, for a time, a halt was necessitated in proclaiming that the bacillus is the sole cause of tuberculosis. Very soon after the publication, in 1866, of Villemin's experiments in the inoculation of tuberculosis it was announced that the disease could be produced by the inoculation of indifferent substances (that is, simple non-specific irritants), and among the supporters of this proposition who based such views on their own experiments were Wilson Fox (1868), Cohnheim, Waldenburg, and Burdon Sanderson. Cohnheim was the first to retract, as the result of further experiments, even before 1882, when Koch's observations were published. Wilson Fox's experiments were repeated at his request in 1883 by Dawson Williams with entirely negative results, which led to a renunciation of his former views by Fox, in December of that year. Finally, Sternberg's experiments (reported in the

American Journal of the Medical Sciences, January, 1885), consisting of the injection of ultramarine blue and powdered glass into the peritoneal cavities of rabbits, seems to have settled the question, and even Formad, who was one of the last to yield, admits that the products are non-specific inflammatory nodules. Thus, the last obstacle to the doctrine that the bacillus is the sole cause of tuberculosis is removed, and attention can now be directed most profitably to the corollaries which grow out of it.

The first inevitable deduction is that tuberculosis must also be contagious; and yet the contagiousness is by general acknowledgment so slight (so few cases being directly traceable to contagion as a cause), that some explanation is necessary. The explanation, he thought, would be found in the mode of dissemination of the contagion, as shown in some comparatively recent observations by Cornet, who inoculated animals with sponge scrapings from the walls of rooms occupied by phthisical patients. Large numbers of animals thus inoculated were found tuberculous, while the control experiments, made with sponge scrapings from houses not inhabitated by tuberculous patients, gave negative results. Further, in no case was the dust of the walls infectious where sputum cups were exclusively used to receive the expectorated matter, although such sputum abounded in bacilli. Thus it is learned that it is through the dried sputum whose bacilli-containing particles are disseminated in the air that the disease is spread, as was indeed originally suggested by Koch; infection being chiefly through the respiratory organs.

Tuberculosis may be characterized as feebly or slightly contagious in the same way and for the same reason that typhoid fever is slightly contagious, because ordinarily the excreta are promptly removed, even if not disinfected. It is only when they dry upon the linen, and thence become scattered through the air, that they enter the lungs or alimentary canal and communicate the disease, as sometimes happens, as is well known, to those nursing typhoid cases. The same conditions, also, which intensify the contagion of diseases acknowledged to be contagious increase the activity of that of phthisis. Thus, the disease is most frequent when people are crowded together, as in prisons, where the mortality is four times as great as outside, and in manufactories, where it is twice as great. To this may be added the fact that married couples infect each other, especially the husband the wife, and that the members of healthy families may become infected, one after another, after removal to a house previously occupied by a tuberculous patient. To the same end tend the environment experiments of Trudeau already referred to to-night.

In the same direction pointed some most valuable and laborious observations of Dr. Lawrence L. Flick, of Philadelphia, illustrated by a series of maps locating the deaths from tuberculosis in a single city-ward for twenty-five years, in which he shows that of the infected houses, scarcely 10 per cent. are isolated (that is, have not an infected house next to them). About 33 per cent. of the infected houses, moreover, have had more than one case in them. Finally, through diagrams showing the distribution of smallpox, typhoid fever, diphtheria, and scarlet fever, he shows that the groupings of phthisis are identical with those of these contagious diseases.

That tuberculosis is also communicated through the alimentary canal is likewise well attested. The chief medium, of course, is food, and especially milk. Gerlach first fed young animals upon the milk of tuberculous cows, with results sufficiently successful to justify the conclusion that there was some specific virus in the milk of such cows which would produce tuberculosis of the alimentary canal or mesenteric glands. Albert reported the case of a litter of young pigs fed on the rejected milk of a tuberculous cow, all of which died of tuberculosis. Finally, Bang reported at the meeting of the International Medical Congress at Copenhagen, in 1884, that he had demonstrated tubercle bacilli in the milk of cows suffering from tubercular mammitis and the production of tuberculosis by the inoculation and ingestion of such milk. Nocard also showed the presence of tubercle bacilli in the milk of cows. Sims Woodhead, in an examination of over six hundred cows in the Edinburgh dairies, found thirty-seven in which there was mammitis, but in the milk of only six, or sixteen per cent. of cases, could he demonstrate tubercle bacilli, and these in small numbers. In one of the six, and subsequently in five others, they discovered bacilli in enormous numbers in the udders.

Such observations as these are admirably supplemented by those of Cornet, reported to the Paris Congress for the Study of Tuberculosis in 1888, when he showed that cultures of the tubercle bacillus introduced into the intestines penetrate very quickly into the mucous walls. At the end of four days after introducing into the œsophagus of guinea-pigs a few drops of tuberculous cultures, he noted submucous tubercular lesions and rapid generalization, but without epithelial lesions, while bacilli were found in the mesenteric glands. But while the general expression of the Congress was against the use of tubercular flesh, and especially tubercular milk, and while the dangers of the use of the former were emphasized, no absolute demonstration of the harmful effects of meat from tuberculous cattle seems to have been afforded; while there were those, as Nocard, who thought its dangers might be exaggerated. Cagny, however, related a case of tuberculosis transmitted from man to poultry. The chickens belonging to a certain family, one member of which was the subject of pulmonary consumption, were found to be almost all diseased. Inquiry discovered the fact that the sick man had been in the habit of walking in the garden, where the chickens had eagerly seized upon the matter expectorated by him. The liver was found to be the seat of the tuberculosis in the chickens.

Again, Mosler, of Greifswold, reports the case of a patient who could not be persuaded to eject his sputum, but swallowed it in large quantities. Ten days after his first attack of cough, diarrhœa with colic set in, which continued until death supervened ten days later. The autopsy revealed tuberculosis of the lungs and intestine, but nowhere else in the body. Mosler is therefore inclined to refer tuberculosis of the intestine to swallowed sputum, rather than to general infection; although he failed to produce intestinal tuberculosis by feeding animals with tuberculous sputum and lung tubercle.

Having referred to the invasion of the skin by tuberculosis, and to inoculation with it by means of circumcision, etc., Dr. Tyson said that the possible transmission of tuberculosis by flies is another important fact of prac-

tical significance. In the last year E. H. Hoffman, of Dresden, has reported that some flies taken from the room of a patient in whose sputum were large numbers of bacilli, were found on examination to have tubercle bacilli in their intestines; while some fly-specks on the walls of the house also contained bacilli. Again, he fed some apparently healthy flies upon tuberculous sputum, and in a few days a large number died. Finally, in order to determine the vitality of these bacilli he inoculated them into the anterior chamber of the eyes of guinea-pigs in five instances. In four there was no result, but in the fifth success was complete; a large number of fresh, small, tuberculous nodules being found afterward in the lungs, liver, and spleen.

The relation of the bacillus to heredity has as yet failed of a satisfactory explanation; more particularly the congenital tuberculosis, for the acquired is probably the result of inoculation by the all-pervading bacillus of tissues well prepared to grow it. Congenital tuberculosis admits of two solutions: first, that the bacillus exists in the ovum of the mother or is communicated to it with the seminal fluid; and, second, that it is passed from the blood of the mother to that of the fœtus through the placenta. In support of the first is the fact that Johne has demonstrated the bacillus in the spermatic tubules and beneath the epithelium of the prostate. Against it is the fact that Rohlfs inoculated rabbits with serum from consumptives with uniformly negative results. Beyond this all is speculation. The second explanation has, however, more tangible support; first, in that other bacteria have been shown to be thus transmitted, as the spirillum of relapsing fever, by Spitz, and the bacillus of typhoid fever by Neuhaus. Such transfer, however, presupposes, of course, the presence of bacilli in the blood, and while Weichselbaum has succeeded in demonstrating tubercle bacilli in the blood, it is very infrequent.

It must be admitted, too, that although Landouzy and Martin have obtained positive results of the inoculation of animals with the placentas of phthisical patients, no tubercle bacilli were found in the products, which may therefore have been pseudo-tuberculosis. Chanen relates the case of a tuberculous mother prematurely confined at seven and a half months, whose child died three days later with tubercular lesions of the liver, spleen, and mesenteric glands. Merkel reports the case of a woman tubercular at conception, who was delivered at time of a child which died. At the autopsy caseous nodules were found in the palatine arch, in the lymphatic glands, and behind the hip-joint. In neither of these cases, however, was the bacillus sought for. Landouzy and Martin have produced tubercular products by inoculating portions of organs from apparently healthy fœtuses derived from tubercular mothers, but the tubercle bacillus was again wanting in the products; while Leyden has repeated their experiments with negative results. Johne, however, has demonstrated tuberculosis in the fœtus of a tuberculous cow. Since most of the blood of the umbilical vein passes through the liver, this organ should be a favored seat of congenital tuberculosis of placental origin, as was the fact in Johne's and in Chanen's case.

Another important corollary to the proposition that the tubercle bacillus is the essential cause of tubercular disease relates to the tenacity of the life of the bacillus. Caden and Mollet, in experiments made with a view to ascertain this, found that tubercular matter, dried and pulverized, is capable of transmitting tuberculosis 102 days after such preparation; but they conclude that virulence does not persist after from 30 to 70 days, unless special care is taken to preserve it. In bulk, as in dried lung, they found virulence maintained 150 days. Schule and Fisher claimed that tuberculous matter remains active at least six months, while Pietro asserts that well-dried sputa may retain infectious properties for nine or ten months at a mean temperature of 77° F.

The evident practical deductions to be drawn from these facts, Dr. Tyson said, he left to those whose province it was to discuss the important matter of treatment.

DR. H. M. BIGGS said that we had now in our possession absolute proof of the causal relation of the bacillus of Koch to tuberculosis. No fact in medicine is better established than this, with the possible exception of the essential cause of anthrax. The evidence, indeed, answers very nearly to the exactness of mathematical demonstration. It seemed to him that the profession could not too soon do away with the notion, held by many even yet, that heredity and other causes are prime factors in the etiology of phthisis. There is one, and only one cause, and that is the tubercle bacillus. That these other factors have an influence we cannot deny, but this influence has the effect simply of reducing the normal power of resistance in the tissues. In order that infection shall result, it is necessary that the dose of bacilli taken into the system shall have the effect of overcoming the tissue-resistance. Depressed vitality resulting from any cause, and antecedent pathological processes existing in the lungs, will naturally facilitate this action of the bacilli.

He believed that the tubercle bacilli were capable of causing the disease without the assistance of any other factor, provided that a sufficiently large number of them entered the system. Heredity, then, means, not the transmission of a predisposition to tuberculosis, but that tuberculous patients transmit to their offspring organs which are easily acted on by such agents as the tubercle bacillus; in other words, organs which have a less resisting power than those of robust individuals. In such organs there is simply an absence of strength, and not the positive possession of unfavorable qualities. It seemed to him that this was a very important point.

If these views are accepted, it follows, first, that phthisis pulmonalis is distinctly contagious; and, secondly, that it is a distinctly preventible disease. The great question that lies before us, therefore, is the prevention of tuberculosis, and he thought that in trying to solve this problem we cannot too strongly insist upon the fact of the single cause of the disease. In the work of prevention all discharges from tuberculous patients should be disinfected, and all tuberculous animals should be destroyed; and we can only hope to carry out such a work by educating the profession and the public in the belief that the disease is due to a single cause. Whether tuberculosis occurs either in animal or man, the fact must be absolutely recognized that it is invariably the result of tuberculous disease existing in some antecedent case.

DR. H. P. LOOMIS said that there was one point to which Dr. James did not allude, and in regard to which he thought it important that something should be said. In the subjects of phthisis there may be what may be called a pre-bacillary condition of the system. It is a

condition of depressed vitality, about which we know very little, and it would seem to afford an excellent field for useful investigation by competent observers. As contributing to this condition we may have heredity, alcoholism, and other depressing influences; but, in addition, in order that tuberculosis should occur, we must have the spark to kindle the flame, and that spark is the specific bacillus. Dr. Loomis said that in confirmation of Dr. James's observations as to the dead-house of the New York Hospital, he could state that he had found that in no less than sixty per cent. of all patients who died at Bellevue Hospital there were old tubercular changes recognizable in the lungs.

DR. TRUDEAU, of Saranac Lake, exhibited some interesting specimens, among which was a copious growth of tubercle bacilli on a piece of potato, illustrating the fact that the bacillus could be cultivated on vegetable, independent of any animal, structures. He also exhibited the lungs of a number of rabbits which were the seat of well-marked tuberculosis as the result of inoculation. He stated that it was possible to produce in animals any kind of phthisis that was known in the human subject by properly regulating, first, the quantity of virus employed; second, the site of the injection, and, third, the environment of the animal. Acute miliary tuberculosis, for instance, could be caused by inoculating the vein of the ear. The animal would die of the infectious disease in about twenty-five days, and an examination would show the presence of tubercles everywhere in the body. By injecting the virus into the apex of the lung a condition would be produced in which fibrous tissue would be found to predominate over the tubercular.

DR. W. H. THOMSON read a paper on

THE INFLUENCE OF THE MICROBE THEORY ON THE TREATMENT OF PHTHISIS.

Having given a sketch of the investigations of Villemin, published in 1865, and of the observations and arguments brought up in opposition to them by Cohnheim, Wilson Fox, and others, he said that the specific nature of tuberculosis was fully reëstablished by the experiments of Klebs, and that with these experiments as a basis sodium benzoate was employed for the purpose of destroying the specific bacteria, whatever they might be, a considerable time before the discovery of Koch. As soon as Koch's conclusions were announced all sorts of so-called germicidal remedies came into vogue, and Dr. Thomson spoke particularly of the use of salicin and iodoform. In every case of phthisis in his service at Bellevue and Roosevelt Hospitals in 1885 and 1886, he employed the latter agent; but as he never met with a single case which seemed to be in any way affected either by its administration or its withdrawal, he then abandoned it entirely.

He said it would only take up time uselessly to speak of Bergeon's short-lived sulphuretted hydrogen treatment and of the use of such agents as tannin, acetate of lead, creolin, and creasote. Personally he had never expected any specific treatment to be of permanent value on account of the organic character of the tubercle bacillus. He had never seen a case of smallpox, measles, or other specific disease that was shortened a single day by the administration of an antiseptic or any other agent whatever. To use a homely simile, we did not know of anything that could be employed by the farmer which would kill the weeds but not the potatoes in his field; and in like manner we could not expect to find any agent that would kill the tubercle bacillus in the body and yet not do injury.

But at the same time Koch's great discovery was not barren of practical results. There is an apparent interdependence of bacterial growths upon each other. That the bacillus needs the assistance of other bacteria in order for it to develop is not often suggested; but Dr. Döllinger has shown that thirteen different forms of bacteria are concerned in the putrefaction of meat, which do their work not so much simultaneously as successively. The streptococcus pyogenes is the most widely distributed microbe known in pathology; so that it may be doubted whether any process in which suppuration takes place ever occurs without it. It is therefore met with in puerperal fever, diphtheria, scarlatina, pneumonia, etc., and the facts go to prove that this organism only needs an entrance into the body to infect the whole system. May not this pave the way, as it were, for the tubercle bacillus, which without its aid would not find a suitable soil for its development?

If this is so, it is of the greatest importance, first, to check all suppurative processes in the lungs; second, to remove the pus; and, third, to prevent putrefaction of pus. One of the best agents against suppuration is creasote, and this may be used both by inhalation and internally. Dr. Thomson related two cases of phthisis with well-marked cavities in which permanent recovery followed the use of creasote. He then said that while he had, of course, met with many cases in which this agent did no good, he believed, on the whole, it was of more efficacy than any other. The second indication was to cause as far as possible a limitation of the tubercular process by promoting the power of resistance in the tissues. In concluding, Dr. Thomson spoke of the difdifference between the physical peculiarities of the subject of phthisis and those of the subject of chronic bronchitis. This contrast, he said, existed before the development of a single symptom, but became more and more marked as the two diseases progressed. It seemed that such patients were born each for his own complaint, and acted accordingly. If by such a study we might be able to strengthen the constitution, he thought it would be of service.

DR. L. WALDSTEIN having stated that he agreed in the main with Dr. Roosevelt as to the diagnostic value of the tubercle bacillus, related the case of a young German whose general condition was poor and who suffered from cough and profuse expectoration. He had been treated for bronchitis, and the examination of the sputum produced negative results. The examination of the chest also failed to develop any positive evidence of phthisis. At length, however, after several examinations of the sputum, some tubercle bacilli were detected. The patient was then sent to Davos, and the climatic treatment had proved in a measure successful. He had met with other cases where not a single bacillus could even be found in the sputum, and yet where all the other symptoms presented positive evidence of grave pulmonary trouble. Relative to the subject of prognosis he mentioned the case of a young man of twenty-one who, while apparently perfectly well, was seized with a copious hemorrhage from the lungs. It so happened that three or four weeks before this occurrence Dr. Waldstein had made

a careful physical examination of the patient, who desired to take out a life insurance policy, and the results of this were entirely negative as far as the presence of any disease was concerned. Other hemorrhages quickly followed the first, and after these the sputum presented almost a pure culture of the tubercle bacillus. The patient was then sent away, and he afterward made a complete recovery, so far as any signs of disease remained. The cough and expectoration ceased, and repeated examinations had failed to detect any bacilli. Yet no competent physician would pronounce this patient cured, for one could not say what might be found in after years. He thought, therefore, that Dr. Roosevelt was right in saying that the evidence of tubercle bacilli was valueless as regards prognosis.

DR. B. F. WESTBROOK, of Brooklyn, thought that some of the gentlemen who had preceded him had overstated the case. The tubercle bacillus was not the only cause of tuberculosis; and, while it might, perhaps, be the only exciting cause, there were other important causes besides this exciting one. The others, indeed, were the more important. As to the matter of diagnosis, also, he thought the actual facts had been somewhat overstated. Personally he had never seen a case where the bacillus was present in which he could not make a positive diagnosis of tuberculosis without its aid. A skilful examiner, he believed, could always make the diagnosis in any case where a microscopist could do so by means of the sputa. In cases of pleurisy at the apex of the lungs, however, where it was not known whether tuberculosis originally existed or not, he thought the examination of the sputa would often prove of value. A few cases were also met with in which patients with weak chests have some crackling at the apex and the diagnosis is somewhat doubtful, because emphysema may present precisely the same signs as tuberculosis. In these, too, the presence or absence of the bacillus would be of considerable diagnostic value.

As to the matter of prognosis, if in any case repeated examinations failed to reveal the presence of bacilli in the sputum, he would conclude that there was no tuberculous trouble, and that the case was probably of chronic interstitial pneumonia. The mere numerical quantity of bacilli found in any case was, in his opinion, of no value. As regards the matter of treatment, he believed that the only influence that the discovery of Koch had upon this had been pernicious. It had resulted in the introduction of all sorts of michievous methods. There could be no specific treatment unless we could discover a specific antidote. Antiseptic agents, however, might be of great service in the treatment of fetid bronchitis, in cleansing and disinfecting cavities and the bronchial tubes, and in fortifying the constitution of the patient.

DR. F. P. KINNICUTT said that some of the antiseptic remedies had an undoubted value in removing foci of irritation and rendering the tissues aseptic. They arrested fermentation and had a stimulating effect upon the vital processes; and it was no doubt to such effects that the benefit noticed from the use of creasote was due.

EIGHTH GERMAN CONGRESS OF INTERNAL MEDICINE.

Held at Wiesbaden April 15th to 18th, 1889.

(Specially reported for THE MEDICAL NEWS.)

The Eighth German Congress of Internal Medicine held its first meeting on Monday, April 15th, under the presidency of Professor Liebermeister, of Tübingen.

DR. LEICHTENSTERN, of Cologne, read the first paper, which was on the

PATHOLOGY OF ILEUS.

In the most ancient writers on medical subjects will be found allusions to ileus; but our most valuable knowledge on this subject is of more recent date, when our mode of investigation had become more rational, and our anatomical studies more certain. Ileus was considered by Mercurialis as an inflammation of the ileum, as colic was regarded as an inflammation of the colon. Later, the designation of ileus was applied to the rejection of feces by the mouth, for some cause of intestinal obstruction. This definition, which we owe to Heurnius, has been accepted by medical scientists, and has been progressively completed as our knowledge of the affection has become more precise.

To-day, we understand by the term ileus a grave and complex train of symptoms which develop when there is intestinal obstruction, due to some mechanical obstruction, or to a paralysis of the unstriped intestinal muscular fibres. The ileus can be divided, according to its mode of formation, into: 1. Mechanical ileus; 2. Paralytic ileus; still oftentimes both these mechanical and paralytic causes coexist, and one can even say that in the majority of cases these two processes of obstruction contribute to the development of the symptoms which are so varied in this disease. The stenosis of the intestinal canal, whether due to a mechanical cause or to a paralytic process, can manifest itself in a very sudden manner, such as the passage of a gall-stone, and we then have a train of symptoms indicative of acute ileus. Still, the sudden appearance of these symptoms does not mean that this stenosis is of immediate formation, for this contraction might have taken place progressively, and have persisted a long time without any notable influence on the general health, until the day when, for some unexplainable cause, perhaps, the compensation which resulted from the muscular hypertrophy developed in the part of the intestine situated above the stenosis, is suddenly interfered with. This stenosis can remain in a latent form, as the contraction of the unstriped muscular fibres situated above the stenosis would suffice to allow the feces to pass.

Amongst the causes which can bring on this more or less latent stenosis, we can mention peritoneal bands, adhesions of the ileo-cæcal or vermiform appendix, or any changes in the uterus and neighboring parts. As a matter of fact, acute intestinal obstruction is always accompanied by a paralysis of the intestinal fibres, and consequently the ileus is not a purely mechanical one.

The symptoms of ileus are local and general. They come on suddenly or progressively, according to the state of the stenosis, whether it is more or less permeable, and according to the point at which the lesion has taken place. In the Galen school, the fecal vomiting was interpreted on the theory of the peristaltic movements. Morgagni

greatly contributed to sustain this theory when he demonstrated that normally the intestinal contents of the colon have already lost as much water as when they come out of the rectum; since this demonstration, it has been admitted that the fecal vomiting was composed of the contents of the small intestine, which being compelled to stagnate there, on account of the obstruction, underwent a putrid fermentation, giving to the vomited matter the fecal-like character observed. It has been demonstrated by such authorities as MM. Hoppe-Seyler, Kühne, Jaffé, Bowmann, etc., that in the vomited matter, in cases of ileus,the presence of chemically determined products encountered in putrid fermentations were easily discernible, even the presence of the bacteria of putrefaction has been demonstrated.

We must, then, draw a definite line between the fecal vomiting which is very exceptionally met with, and the fecaloid vomiting, which does not consist of real fecal matters, but of fermented intestinal contents, as a result of stagnation above the occlusion, and impregnated by an odor like that of the real feces, but developed in the *small* intestine and not below it. The vomiting can be of a fecaloid character even if the matters come from the upper part of the ileus or jejunum, as has been demonstrated by the observations of Kahler, in Germany, and of Cossy, Larguier, and Besnier, in France, who think it possible to conclude, according to the early or late appearance of the vomiting of fecaloid matter, as to the actual seat of the obstructive lesion.

The antiperistaltic theory has been abandoned later for the hydraulic theory, which, up to date, has had many partisans, although it has been severely combated by Van Swieten, Morgagni, and Haller. It is to Haguenot, of Montpellier, that we owe the most complete demonstration of the reality of the antiperistaltic movements of the intestines, and after his experiments, made as early as 1713, a great many physicians accepted anew the antiperistaltic theory. The author made, with Kirschstein, a new experiment to demonstrate the real state of the antiperistaltic movements. After having excised in a dog a section of about ten inches of intestine, then reversing it and reuniting it, end to end, to the cut sections, he killed the animal seven days after the operation, which was made with the strictest antiseptic measures, and prevented the development of any septic inflammation. At the autopsy it was hardly noticeable where the segment had been reversed, and as all the phenomenon of digestion had been accomplished without the least inconvenience, we must conclude that the movements in the reversed segment of intestine must have taken place as in the rest of the intestinal tract, in the same direction; it also establishes the fact that the contraction progressed in this reversed segment in a direction the reverse of its habitual. In dogs in whom concentrated saline injections had been made, Nothnagel was also able to observe antiperistaltic movements.

We are, then, enabled to admit that the products of fermentation developed in the intestine as a result of stagnation of its contents, can produce on its muscular walls the same action as the experimental saline injections, although Bokai, in publishing his experiments in relation to the injection of products obtained from the fecal matters does not mention antiperistaltic movements, and only speaks of intestinal spasm.

Leyden, at the Congress of 1884, presented a patient in whom he had been able to observe antiperistaltic movements, without there being any signs of occlusion. In France, Dieulafoy, Jaccoud, and Briquet have published several observations of fecaloid vomiting in hysterical patients, which led us to believe in the real existence of antiperistaltic movements without intestinal occlusion.

In ileus the fecaloid vomiting can occur from any point of the intestine where the obstruction has taken place, either from mechanical obstruction or from a paralysis of the muscular coat, or, again, from both these causes. The stagnation of the matter in the intestines is the origin of a urinary symptom to which Jaffé has attached a real diagnostic value, for, according to him, indicanuria or phenoluria are only observed in those cases where the occlusion is situated in the inferior portion of the ileum. Meteorism also contributes, on account of its form, variable in different cases, to the diagnosis of the seat of the lesion.

The general symptoms are the result of reflex phenomenon or of auto-intoxication manifestations; in addition to the pain, which indicates about the point of obstruction, there is produced, through the intervention of the sensitive nerves, a series of reflex disturbances which locate themselves on the innervation and vascularization of the involved region itself, at the same time influencing the cardiac activity; hence the origin of collapse, of the sudden fall of temperature below normal, of the cutaneous anæmia, of the abdominal facies, smallness of the pulse, etc.

To it is due also the albuminuria or anuria, or the disturbances of respiration, which are also helped by the presence of meteorism, cold sweats, etc.

The nervous system contributes to the symptomatology by localized or generalized contraction, by delirium, coma, and a variety of tetanic accidents which are analogous to those observed in certain ovariotomies; several of these nervous symptoms are allied to disturbances of the circulation, which produce anæmia of the brain, or to phenomenon of fecal herniæ.

The introduction into the lymphatic system or veins of putrid matter, developed from stagnant intestinal contents, is often favored by necrotic products, which can occur at the obstructed spot, and which will produce, in such cases, an auto-intoxication which can be compared to typhus cholera. There is a great diminution in the quantity of water contained in the blood, which can explain in part, as in cases of cholera, the interference with the circulation and the weakening of the cardiac contractions. This reduction of the quantity of water found in the blood is due to vomiting and to intestinal hypersecretion. Malgaigne has studied such a type under the name of *hernial cholera*, and Moreau and Hanan have shown that a section of the mesenteric nerve fibres produces a considerable amount of liquid in the intestines, while Cohnheim saw an example of paralytic hypersecretion.

The knowledge of these symptoms will enable us to make a correct diagnosis, to distinguish the ileus from other affections which are liable to simulate it, such as symptoms produced by utero-ovarian lesions, the inflammation of a testicle located in the inguinal canal, enteralgia enteritis, and especially perityphlitis and peritonitis, which can be accompanied by a paralysis of the intestinal fibres. The next diagnostic step is to find out the

seat of the occlusion. In this respect it may be well to remark that, when the occlusion is situated in the upper portion of the small intestine, the abdominal wall is contracted, while in the other cases the abdomen is uniformly distended, with a depression in the regions of the ascending and descending colons. Moreover, if the occlusion has already existed for some time, the increase or swelling of the intestine itself produces a certain number of projections on the surface of the abdomen.

When the lesion occupies the lower part of the small intestine, the constipation will have been more prolonged before the appearance of the symptoms, and the late appearance of the fecaloid vomiting and the gradual development of reflex symptoms contribute to establish the diagnosis of the seat of the lesion.

DR. CURSCHMANN, of Leipzig, then read a paper

ON THE THERAPEUTICS OF ILEUS.

Surgical treatment cannot always be applied in ileus on account of the excessive intraäbdominal pressure, due to meteorism, etc. In this respect we must distinguish, on the one hand, the cases in which ileus is characterized by very marked meteorism and by a great weakness in the cardiac contraction; on the other hand, cases in which these symptoms do not exist. In a female suffering from an ovarian tumor, we can always undertake a laparotomy if the general state of the patient is good; while in persons under the influence of a general state as described above, such a procedure would be fatal in its results.

In cases of ileus, also, we might be compelled to make a very careful and very prolonged exploration of the suspected intestinal obstruction. In those cases, it can be well understood, laparotomy would only help us if the diagnosis of the seat of the lesion had previously been carefully determined. On the contrary, every time that we are certain of the diagnosis—that we know the seat and anatomical cause of the lesion, we must resort to the operation as early as possible.

The statistics of ileus, even if the treatment has remained an exclusively medical one, is not of so an unfavorable prognosis as is ordinarily admitted. Out of 105 cases, 50 of which were the author's, the number of cures without the intervention of the surgeon was 35.5 per cent. In the medical treatment purgatives must not be allowed, for they rapidly weaken the patient; they also increase the secretions, and consequently the abdominal pressure, producing, therefore, an increase of the paralysis of the muscular fibres. The author always begins by giving his patients about 0.5 gramme to 1.5 gramme of opium in the twenty-four hours; which medication is immediately suspended when dangerous symptoms of muscular paralysis of the intestine occur. Washing out of the stomach with the stomach-pump acts as a palliative, and is curative also, diminishing the pressure in the stomach, and from thence in the intestines. Gaseous injections in the rectum must be used to immobilize the diseased intestinal segments, and eight to ten punctures with the hypodermatic syringe, here and there, can also contribute to give more freedom to the involved intestine and help the final cure as much as possible.

DR. JURGENSEN, of Tübingen, agreed with the treatment of intestinal obstruction described by Dr. Curschman; yet there are certain points which he could not allow to pass, such as the treatment and efficaciousness of gaseous injections into the rectum. He did not at all believe in the efficiency of treatment by these injections, for the following reason: if we inject into the rectum of a dog a certain quantity of atmospheric air, we find that the intestines, being dilated, compress themselves mutually, and if at that moment we measure the arterial pressure, we find that it is very much reduced, and that the oxygenation of the blood is very much interfered with, the blood withdrawn from an artery presenting all the characters of venous blood; from this he concluded that gaseous injections in the dog result in a great lowering of the arterial pressure and a diminution in the oxygenation of the blood.

What takes place in a man suffering from intestinal occlusion, his breathing being already very much interfered with? A gaseous injection can only increase this respiratory dyspnœa, and death will occur very rapidly; we also know that death by heart-failure is of common occurrence in ileus. He concluded by saying that he did not think it at all necessary to increase the chances of death of an individual suffering from intestinal obstruction, by giving him gaseous injections.

DR. ROSENBACH, of Breslau, said that in cases of intestinal occlusion he thought it necessary that the urine of the patient should be carefully examined; a certain quantity of nitric acid is added to the urine and shaken for some time; if the reaction indicates the presence of a great quantity of urobilin, this becomes of very great importance in a diagnostic as well as in a prognostic point of view. The presence of urobilin in the urine indicates a great interference with the nutritive changes, which interference is due to mal-assimilation of the ingested albumin; we have here a phenomenon of inanition by intestinal insufficiency, for the resorption of intestinal matters in a state of putrefaction has nothing to do in this matter. The eliminated organic matter is formed in this case by the albumin which is held in reserve in the human body; the reaction is an important one, as it demonstrates an anomaly in the molecular changes. By the use of this test any anomaly is easily discernible.

If, after fourteen days, this reaction still persists, it indicates that we have to deal with an intestinal disease which will prove fatal in a very short time; this has been shown by clinical experience, and the persistency of this reaction contraindicates absolutely any surgical interference. As to the intestinal punctures, he thought them excellent; but they must not be made with a trocar, no matter how small it may be; the best instrument to be used is, without doubt, Pravaz's hypodermatic syringe; several punctures must be made at the same time in different places, going from one side of the abdomen to the other, for the intestinal pressure is unevenly distributed along the whole length of the intestinal canal; in all his experiments he had always found the intestinal pressure to be higher on the right than on the left side; hence, the right hypogastrium ought to be the region more often punctured.

PROF. NOTHNAGEL, of Vienna, said that if the peristaltic movements are very great, invagination will produce itself without giving rise to symptoms of intestinal occlusion, such as are ordinarily presented. He did not believe in invagination as a frequent cause of intestinal obstruction, nor did he believe in the antiperistaltic

movements of the intestine; whenever he has injected great quantities of a concentrated saline solution into the œsophagus of a dog, he has never seen any antiperistaltic movements, and these spasmodic actions of the intestine he had observed only where he excited the intestine itself.

Prof. Ziemssen, of Munich, demonstrated formerly that gaseous injections are not so dangerous as was stated to-day, but they must be made with care, for the air can pass through the obstacle and acting upon the upper part of the intestine, bring on vomiting. He had seen in two cases fecal vomiting, which had been diagnosed intestinal obstruction; at the post-mortem a communication between the transverse colon and stomach was discovered and the fecal matter passed from one to the other. One case was a round stomach ulcer; the other a carcinoma of the same organ. As regards treatment, I do not believe at all in internal medication, as drugs are not absorbed by the intestines. At the age of twenty-eight years, he suffered from an ileus; opium given by the mouth had no effect, opium enemata alone gave him some relief. Rosenbach has well demonstrated this fact of the non-absorption of drugs by the intestines under the conditions just named.

In addition to the above treatment, he thought it well to puncture the intestine several times. He had made as many as sixty-eight punctures at one sitting, using an ordinary well-sterilized pin, and he was sure that these punctures have a favorable influence on the course of the disease.

Surgical intervention he thought sometimes a dangerous proceeding, as he had seen a patient under chloroform suddenly taken with vomiting of fecal matter, which penetrating into the respiratory passage produced sudden death.

Prof. Immermann, of Basle, then read a paper on

THE FUNCTIONS OF THE STOMACH IN PULMONARY TUBERCULOSIS.

He said that the treatment of all the chronic infectious diseases, such as tuberculosis, must be carried on in a new direction, since the researches of Metschnikoff on the fight which takes place between the cells and the microörganisms which invade the human economy. For this reason we find that Debove in France, Dettweiler and Bezold in Germany, have tried to place the organism in the best possible conditions to enable it to defend itself against the tubercle bacillus. The natural feeding of the phthisical patient is somewhat difficult, on account of the absolute distaste for food which certain phthisical patients have, even at the very beginning of their disease.

If the physician, however, is persevering, he will be able to force the patient to take a really large quantity of food; this is the process recommended by Dettweiler. Immermann's studies have been directed to the study of the physiology of digestion as encountered in phthisical patients; the variation therefrom had been named by Dettweiler as the nervous dyspepsia of phthisis.

As a result of his experiments, he has found that in nearly all the tubercular patients he has had to treat, the stomach was in a normal physiological condition; moreover, the state of the stomach seems to be absolutely independent of the more or less advanced state of the pulmonary lesions; the gastric juice remains the same. There is, perhaps, an exception to be made for the tuberculous patients suffering from hectic fever, and even in such cases the function of the stomach is interfered with on account of the application of the law of general pathology which shows that the stomach functions are very much interfered with in all febrile states of the organism. He published the result of twenty-five observations, in Virchow's *Archiv*, last year, showing that in all these cases the digestive powers had been absolutely maintained, and since this communication his observations have continued just as conclusive. He maintained that in phthisical patients the functions of the stomach remain perfect.

For the purpose of studying the digestive power of the gastric mucous membrane in such patients, he employed the stomach-pump fifty-five times. In fifty-one cases he found the stomach absolutely empty six hours after the last meal; moreover, the digestion was normal even where it seemed impossible that it should be so. In a certain patient who had enormous pulmonary cavities, broken-down cachetic state, no appetite, in the midst of his hectic fever digestion was going on perfectly.

His next series of experiments was made on forty-five patients; after fasting twelve hours a large meal was given to them, and he then, by the aid of the stomach-pump, examined the composition of the gastric juice. It presented the reaction of Gunsburg, which consists in reducing aniline by hydrochloric acid in thirty-eight cases. The quantity of hydrochloric acid found varied from 1 to 4 per 1000, and this even in the most advanced cases of phthisis; moreover, no traces of lactic or butyric acid could be found. In six of his patients the aniline test remained negative, and the extract obtained was not acid. This establishes the fact that in phthisical patients the quantity of the hydrochloric acid is not below the average of the gastric juice of a normal stomach. Having demonstrated the presence of hydrochloric acid, he next studied the amount of pepsin; for this purpose, every morning and evening he aspirated from the stomach of a phthisical patient a certain quantity of gastric juice, and he then placed two three little disks of albumin of about two to four millimetres in thickness in this liquid, and in a culture stove. When the test of Gunsberg existed it took about one hour for the digestion of these small disks.

In conclusion: there is really no dyspepsia in pulmonary phthisis, it does not belong to this affection, and if present, is more to be regarded as a complication. The inappetency or dyspepsia of tubercular patients has no connection whatever with the anatomical or physiological state of the gastric mucous membrane, and one must not attach a too great importance to the morbid symptoms, which really do not belong to the stomach.

(To be continued.)

NEWS ITEMS.

A Judge's Opinion on the Use of the Title Homœopathist. —Judge George C. Barrett, of the Supreme Court of New York, sends to the *New York Medical Times* an opinion which will be read with much interest. He was asked to give a reply to the question: "Has a physician designating himself an 'homœopathist' and called as such to a patient, any legal or moral right to adopt other than

homœopathic means in the treatment of the case?" To this Judge Barrett answers: "I have your note of the 11th inst., asking my opinion upon a question of professional ethics. In my judgment there can be but one answer to your question, and that in the negative. If I call in a medical man who designates himself a 'homœopathic physician,' it is because I do not wish to be treated allopathically, or eclectically, or otherwise than homœopathically. There is an implied understanding between myself and the homœopathist that I shall receive the treatment which, by tradition and a general consensus of opinion, means small doses of a single drug administered upon the principle of *similia similibus curantur*. If there is to be any variation from that method I have a right to be informed of it and to be given an opportunity to decide. Common honesty demands that before a confiding patient is to be drugged with quinine, iron, morphine, or other medicaments, either singly or in combination, he should be told that the 'homœopathist' has failed, and that relief can only be afforded by a change of system. An honest 'homœopath' who has not succeeded, after doing his best with the appropriate homœopathic remedies administered on homœopathic principles, should undoubtedly try anything else which he believes may save or relieve his patient. But when he reaches that point the duty of taking the patient into his confidence becomes imperative. The patient may refuse to submit to the other system or he may agree, but prefer a physician whose life has been specially devoted to practice under that other system. He may say to the 'homœopathist,' 'You have failed, but I prefer to try another gentleman of your own school, before resorting to a system that I have long since turned my back upon.' Or he may say, 'Well, if homœopathy cannot save me, I prefer to go to headquarters for allopathic treatment.' All this, gentlemen, is the logical sequence of the particular designation 'homœopathist.'"—*Medical Record*, May 4, 1889.

Medical Men and their Remuneration.—A curious case will shortly come up for trial in a law court in Saxony, the result of which will scarely fail to be interesting to most practitioners. A medical man was in attendance upon the wife of a rich man in Saxony. The patient was exceedingly ill, and her husband was naturally extremely anxious. For the purpose, as it would seem, of stimulating the best energies of the practitioner, the husband promised, if his wife recovered, to give half his fortune to the doctor. The circumstances were propitious for the patient, and her health became established; in short, a complete cure was effected. This result having occurred to the entire satisfaction of the husband, the latter forwarded in the course of time a large sum of money in requital of the practitioner's services. The doctor, however, refused to accept the sum in question, and claimed as his reward the moiety of the fortune which had been promised him. The rich man's fortune was equal to £100,000, and although he seems to have agreed to dispose of half of this amount to the medical man in the event of the recovery of his wife, he now refuses to carry out his promise which he had given, and repudiates the claim which is being made upon him.

Thus the aid of the law is about to be sought in order to determine the point in dispute. The case for the doctor will, in all probability, entirely depend upon the legal evidence which he is able to produce of the agreement. It is scarcely to be supposed that any feeling of sentiment will be allowed to influence the result. The rash promises which are made in the presence of medical men, either by patients or their friends, is matter of almost common occurrence, under certain circumstances, while the rapid declension of that feeling which is called gratitude, after the danger is past, is proverbial, as far as the practitioner is concerned. In connection with the case above narrated, the doctor, if successful in securing £50,000, will be able to pride himself upon receiving the largest fee which has ever been paid to a medical man; but, generally speaking, it would require a sanguine person to believe that legally the rich man will be compelled to make good the promise into which he seems rashly to have entered.—*Medical Press*, April 3, 1889.

In Memoriam.—At a meeting of the Philadelphia County Medical Society, held April 24, 1889, the following minute was unanimously adopted:

By the death of DR. SAMUEL W. GROSS this Society has lost an industrious colaborer, a wise counsellor, and the profession one of its most brilliant ornaments. As a student, practitioner, and teacher, he possessed, with remarkable surgical acumen, unusual powers of analysis and deduction, and his lectures, like his mental workings, were conspicuously clear, concise, logical, and vigorous. He was an earnest student of the progress of surgery in all countries, with more respect for the experience of the present than the traditions of the past, never satisfied to stand still and ever advancing with the progress of science, he kept his teaching always apace with the rapid strides of surgical knowledge. As an operator he was bold, conscientious, and successful. Possessed of broad views, he was quick to recognize merit and to welcome truth by whomsoever presented. He took an active interest in all that pertained to the welfare of the profession and was ever ready to work for its promotion. He possessed positive convictions and was frank in their expression. As a companion he was genial and entertaining, as a friend generous and true.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 30 TO MAY 6, 1889.

BORDEN, WILLIAM C., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Ringgold, Texas, and ordered to report to the commanding officer at San Antonio, Texas, for duty at that post.—Par. 7, *S. O. 100, A. G. O.*, May 1, 1889.

FISHER, WALTER W. R., *Captain and Assistant Surgeon.*—Is hereby granted leave of absence for one month.—Par. 1, *S. O. 30, Headquarters Department of California, San Francisco, California*, April 27, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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ORIGINAL LECTURES.

THERAPEUTICS OF THE GOUTY DIATHESIS.

From a Lecture delivered in the Polyclinic Evening Lecture Course, March 12, 1889.

BY SOLOMON SOLIS-COHEN, A.M., M D.,

PROFESSOR OF CLINICAL MEDICINE AND APPLIED THERAPEUTICS, PHILADELPHIA POLYCLINIC; LECTURER ON SPECIAL THERAPEUTICS, JEFFERSON MEDICAL COLLEGE, ETC.

RECOGNIZING from the facts we have thus far considered, that it is not a disease—not a sudden or a gradual departure from the usually normal action of the organism—that we are dealing with; but that it is, if I may be permitted the expression, an abnormal normality; that is to say, an inherent departure of the individual organism from the typical action of like organisms; we see that our treatment is of necessity directed to permanent conditions, and must be of a permanent character. Our aim then, is not so much to alter the action of imperfectly functionating organs—though this must be, to a certain extent, part of our plan—but so to arrange the materials upon which that action is performed, and so to deal with the resultant products as to obviate the further disturbances of the economy arising from the presence in the circulating medium of irritant or toxic matters, or of matters not directly toxic, but still negatively harmful by their exclusion of others needed to promote proper function, or of matters detrimental to general health, by throwing an added burden upon excretory organs to secure their removal.

Repeating then, that it is not "gout," not the storm of diseased action finding its vent in articular inflammation with febrile reaction, which we are now considering, but the "gouty diathesis," the inherent tendency on the part of certain organisms to depart from the normal type of their kind, in the functions particularly of secretion and excretion, and, to a certain extent, of respiration; a tendency not confined to any one organ or set of organs, but influencing more or less markedly every cell of the body, and, in particular, muscles and blood-making and depurating organs; let us see what are the particular objective points of therapy, and in what manner these can be best secured.

Through the teachings of the greatest biologist of the century, we have come to recognize that life is maintained by a continual adjustment of the parts of the organism to each other, and of the organism as a whole to its environment; and as a corollary that a perfect, harmonious adjustment constitutes health, an imperfect, discordant adjustment constitutes a want of health. If every departure from ordinary action of one organ was met by a compensating departure of other organs, and in such a manner as not to impair the harmony between the whole organism and its environment, then such departures would not constitute disease. It is, therefore, theoretically conceivable that the failures of assimilation and excretion, which we collectively group under the title "gouty diathesis," can be completely harmonized by automatic action of the organism, and be consistent with a state of perfect health. Practically, however, the conditions requiring adjustment are so numerous and so involved that while in a great many instances comparative health is maintained for prolonged periods, sooner or later a variety of disturbances, more or less marked and more or less serious, are brought about; so that it is important to impress upon the patient that the condition, be it what it may, for which he seeks relief, is not a temporary matter to be cured by temporary expedients, but the sign of a profound organic alteration, and as such demanding permanent attention. The first point in therapy then, is to gain the intelligent coöperation of the patient.

We must next endeavor to determine to what extent the organic alteration of tissues and functions has been developed in the individual case before us; and in how far this is removable, and in how far it is a permanent life-condition. This is an extremely difficult problem, and can only be solved by careful study of all the symptoms, the temperament, general physical condition, and, as far as can be learned, the personal and family medical history of the patient. It does not fall within our present limit to discuss this extremely interesting question of therapeutic diagnosis. We must assume that it is determined, and choose a representative case as illustrative of the general course to be pursued; with such modifications in other cases as individual conditions may indicate.

Suppose then, that we have decided—as in a case I now have in mind, and of which I will endeavor, for the sake of a concrete example, to present in brief the salient characteristics—that there is a congenital tendency to the over-production of uric acid and to excessive waste of phosphated tissues—a conjunction extremely common—that can never be entirely overcome; but that the results of this tendency are greatly aggravated by the mode of life of the patient and by his mental characteristics. We have first to remove the removable, remedy the remediable; that is to say, reduce the nervous wear and tear and in general alter our patient's mode of life to harmonize with the impaired structure he has inherited. This being done, we must endeavor to secure prompt elimination of the excess of uric acid, whose formation we cannot altogether prevent, and also to check the excessive waste of phosphates and repair their loss.

The patient is an attorney in active practice, of middle age and of nervo-sanguine temperament. A hard student, he takes but little physical exercise—perhaps walks to his office in the morning, if he rises early enough—but is, as a rule, a late riser, because he always goes late to bed. His breakfast, he says, is "light," because he has little appetite in the morning; but the dish of oatmeal, or some porridge equally difficult of digestion, is always eaten. His luncheon at a restaurant is in reality a more than sufficient dinner. It is eaten none too

leisurely, and immediately thereafter he rushes back to his business. In the evening his dinner at home is an elaborate meal, to which a sufficient time is devoted; after which, however, he feels heavy and oppressed. Nevertheless, he will frequently devote his night, sometimes into the small hours, to reading and writing; or if he has gone to the theatre or some social affair, take up his books and papers on returning home.

At breakfast, then, this man eats too little, at luncheon and dinner a great deal too much, his physical exercise is insufficient, his mental exertions too great. In addition, the character of his food is entirely unsuited both to his inherited constitution—his father was the subject of gout—and to his mode of life. He does not need much animal food, for he makes little demand upon his own muscular apparatus; and while we cannot hold strictly to Liebig's classification of foods into tissue-formers and heat-producers, there can be little doubt that nitrogenous foods, as a rule, are devoted to tissue-formation and to the furnishing of those explosive compounds by which muscular activity can be suddenly liberated in response to nervous impulse. It is also true, within certain limits, that nitrogenous foods increase the formation of urea and uric acid, a tendency we desire to restrict and modify.

Yet meats of various kinds form absolutely the greater part of our patient's diet. Furthermore, his inactive life does not make very great demands for heat as a source of mechanical action. Beyond that necessary to supply the force required to keep up the functions of organic life, and a little extra demand for increased cerebral circulation, he needs no particular store of heat-producing elements. Of the carbohydrates, besides, sugar is a direct excitant of uric acid formation; therefore, this must be cut off entirely, and the starches easily converted into sugars reduced to a minimum. On the other hand, the great waste of phosphates, due to congenital tendency and to excessive nervous action, needs repair, and a sufficient amount of fat, of hydrocarbons, must be taken to enable the economy properly to perform its functions with the least possible expenditure and friction. The fat is useful not only as a heat-producer, but in another way. It would, of course, be an extremely crude and inaccurate view of nerve-tissue formation to represent it as a mixing of phosphates and fat—yet nerve tissue is largely phosphorized fat, and by whatever processes of metabolism its structure is built up, consumed, and renewed, I am sure, from clinical observation in just such cases as the one in point, that fats and phosphatic foods do assist in giving it proper tone and diminishing its waste. The good effects of cod-liver oil and of the hypophosphites in improving the nutrition of phthisis, must be in great measure attributable to improvement of the trophic nervous system.

But there are, in addition, other and more easily demonstrable reasons for diminishing the amount both of meat and of sugar and starchy foods, than those already suggested.

The vertigo, the disturbances of vision, the headache, the inability to concentrate attention upon his work, the throbbings, the pains here, there, and elsewhere, the disturbance of the heart rhythm, the condition he terms "torpidity of liver," for which the patient seeks relief—that condition, in a word, which tortures the patient with dread of impending mental failure, and which by physicians is so often carelessly mistermed "neurasthenia"—is to be ascribed not alone to the overloading of the circulation with uric acid, but also to direct and indirect impoverishment of the blood, from faulty assimilation due to failure of digestion. Too great a demand is made upon the digestive apparatus, and the energies that should be directed to other work are called upon to prepare an amount of food far beyond that necessary for purposes of force-production or tissue-building. The work is not done properly; and, as a consequence, the system suffers both from lack of the products of perfect digestion and from overplus of the products of imperfect digestion. Therefore, we must diminish the absolute quantity of food consumed, and must so regulate its quality as to produce the greatest amount of force with the least possible expenditure.

We must, in addition, cut off those elements which, if undigested, are liable to undergo acid fermentation, thus increasing uric acid production. It is a mistake, I think, except in the worst cases, to interdict meat completely. We can allow one kind of meat at one meal, daily; giving the preference to "white meats," but not absolutely excluding butchers' meat. We must insist upon proper cooking—that is, broiling, roasting, or boiling; not too "well done" in the former methods, and not "done to rags" in the latter. Fish can often take the place of meat with advantage. Bread must not be used in excess, and gluten bread, or that made from the whole wheat and retaining the phosphates, is preferable to our ordinary white bread. Pastries and sweets are to be forbidden. Potatoes, turnips, cabbages, and similar starchy vegetables should be cut down to the lowest point, or, better, avoided altogether. Rice, well cooked, may be allowed in moderation. Green vegetables, lettuce, celery, cresses, spinach, asparagus, and the like, may be partaken of judiciously, unless any one of them should give rise to unpleasant symptoms—so, too, the legumens, peas, beans, lentils; preferably in the form of *purée*.

Fruits, if not too acid, may be used freely. If any particular fruit is found to cause indigestion, or to give rise to gouty manifestations, it should be interdicted. Patients are often markedly idiosyncratic in the matter of fruits, and it is impossible to lay down exact rules.

Fat, in the form of butter, cream, oil, or meat fat, should be used in moderate amount. Even in the obese, as Ebstein has more particularly insisted upon, it is a mistake to cut off fats entirely. The quantity must be governed by circumstances; the amount of work done by the patient and the extent to which we are substituting hydrocarbon for carbohydrates must be considered and the results observed. Some careful experiments by Ebstein show that, up to 120 grammes of butter daily, the amount of uric acid excreted by a healthy man was rather diminished than increased by the consumption of fat.

Fluids, and especially water, should be used freely. To speak first of nutritive fluids, milk should be substituted for meat to some extent, and, perhaps, as some claim, absolutely in the worst cases, though personally I have not found it necessary to insist upon entire abstinence from flesh. The so-called "milk-cure" of gout is a delusion and a snare. An exclusive milk diet will harm rather than benefit our lithæmic patients. It is important in these and all other cases that milk be properly used. It must not be gulped hastily, ice-cold, to

check digestion and to coagulate into a great tough curd requiring hours for resolution. Sipped slowly, so as to form minute coagula through which the digestive juices can readily penetrate; and, preferably lukewarm, so as not to lower digestive temperature, the fancied "disagreement" of milk with many patients will not be manifested. From one pint to three pints daily may be taken according to the quantity of other foods permitted. Soups, if not too thick—that is to say, *bouillon* rather than "stock"—should always precede at the principal meal of the day. Like the beef-tea of the sick-room, this is rather a gentle stimulant to the peptic glands than an aliment, and it furnishes also a quantity of warm fluid to help the solution of other aliments. It is almost unnecessary to say that cold water must not be taken with meals. The use of hot water at meals if must be, but preferably an hour before meals, is of signal advantage in gouty dyspepsia.

While excess is injurious, even in the use of water, and while it is beyond question a mistake constantly to overload the vessels, yet a certain amount of flushing at intervals gets rid of noxious accumulations and gently stimulates the kidneys, the skin, and the intestinal glands and mucous membrane to the work of excretion, which it also facilitates by suspension or solution of the offending matters. It reduces in this way the danger of calculous concretions. I am sure that much of the benefit from certain vaunted mineral waters is due as much to the H_2O as to the salts held in solution. The same thing may be said of certain medicinal infusions and decoctions—the real "active principle" is hydrogen monoxide.

When we cannot induce patients to drink water, or when the ordinary drinking-water of the locality is noxious, we can then appropriately order some alkaline spring-water. And this brings us to the question of the administration of alkaline remedies. I can only reëcho the advice of Ebstein—they are to be "used, not abused." Even moderate doses of alkalies are badly borne by some patients; and some require the concurrent administration of a ferruginous or bitter tonic. Carbonates, acetates, citrates—that is to say, salts of vegetable acids—should be employed. Lithium has a preëminent reputation, but I cannot say that it is altogether deserved. I think I have seen equally good results from potassium salts; but ammonium and sodium salts, especially the latter, should, as a rule, be avoided, as having a certain tendency to produce insoluble compounds. Very often it may be found that a combination of two alkalies—for instance, lithium citrate, say ten to fifteen grains dissolved in *liquor potassii citratis*, say two fluidrachms—will give better results than either salt singly.

I have not observed better results from lithium-sodium-benzoate than from lithium and potassium citrates or the potassium carbonates. Potassium acetate, as a rule, does not seem to be equal to the other vegetable-acid salts, though it is an extremely difficult matter to decide positively between the various alkaline medicaments. Lithium salicylate is often of decided benefit, especially where vague myalgia, so-called "muscular rheumatism," has been present. Probably better results are to be obtained by varying the particular drug employed than by constant use of any one salt or of the salts of any one base. I have not seen any great benefit from colchicum in the gouty diathesis, though its value in acute gout cannot be denied.

There are other points in the medicinal treatment which may be more appropriately taken up after a few further matters connected with the regimen of our patient have been considered. He drinks "moderately." But even "moderate drinking" is an excess for a person of gouty inheritance. If possible, we must cut off alcohol entirely. If necessary, the change may be gradual. Malt liquors and sweet wines must be absolutely prohibited in any event. The least injurious alcoholic beverages in these cases are spirits (whiskey, brandy, or gin), and light dry or sour wines.

Exercise, appropriate in its quality and quantity, must be, not vaguely advised, but definitely prescribed. In the prescription of exercise careful judgment is necessary. We must consider not only the patient's physique, but also his occupation, means, and surroundings, and endeavor to give advice capable of practical application, with the least disarrangement to his affairs. Where time and purse permit, horseback exercise, in moderation, is probably best of all. Bicycle or tricycle riding will sometimes answer as well, and is, indeed, an admirable exercise. Open-air walking is within reach of all. In all these the patient, if unused to active exercise, must begin with very little exertion and gradually increase. Where a long and thorough rest can be had after exercise, and where the skin, intestines, and kidneys are in vigorous function, it is well to push it to the point of fatigue; but in the majority of cases it is better to stop short of that point. I have, however, seen excellent results from fatiguing exercise persisted in daily, at intervals, for short periods, a week or ten days at a time.

The use of dumb-bells and other calisthenic measures at home is inferior to open-air walking or riding, but may be associated with the out-door exercise.

As to the matter of baths, opinions differ greatly. Cold bathing is lauded by some, and condemned by others. In this, as in many other instances of disagreements as to therapeutic measures, the fault lies in exclusive regard being paid to the two extremes of a problem, disregarding the very important connecting mean. In other words, we have to consider not an abstract pathological condition or complexus and an abstract remedial action, from which factors we may, as in pure mathematics, deduce an equally abstract and theoretically exact conclusion; but we must also consider the very concrete patient in whom the pathological condition is present, upon whom the remedial action is to be exercised and in whom the result is to be practically manifested. Empirical observation, guided by rational forecast, must then be the determining factor of the problem. In the patients of sanguine, or nervo-sanguine, or even bilious-sanguine temperament, whose robust condition leads us us expect prompt reaction from cold bathing, it may be judiciously advised; and if it produces an agreeable glow with a general feeling of exhilaration, should be continued. On the other hand, it will probably be injudicious in weak or run-down persons, or in those of lymphatic or bilious temperament; and in any case in which it fails to produce an agreeable and stimulating reaction, should not be practised. It is important, however, in all cases to keep the skin in active function. Where cold bathing is ill-advised, lukewarm baths should be frequently taken, and Turkish or Russian baths, if well borne, at intervals of three or four weeks or more, according to indications.

The intestinal functions must also be kept at a proper pitch of activity, not alone that digestion may be properly performed, but that auto-intoxication with leucomaines may not assist the general depressing influences. An occasional saline laxative, Rochelle salts preferably, may be used in case the mineral water habitually or occasionally employed is devoid of mild purgative effect. In some cases, especially where the liver is markedly at fault, probably in a condition of venous congestion, with more or less catarrh of the bile ducts, the acid phosphate of sodium, with an occasional mercurial, will be found to serve a good purpose. Habitual use of active saline or other cathartics, or drastic purgation at any time, is to be deprecated. If there is intestinal atony, or lack of secretion, the remedies usually employed for these conditions, nux vomica, belladonna, rhubarb, euonymin, and the like, may be resorted to in appropriate combinations.

One other remedy, or class of remedies, addressed to the general condition should not be forgotten. At first sight it would appear to be theoretically contraindicated, but at all events there is agreement as to its good effect empirically; and hence there can be no sound theoretic objection. The fault lies in any theory which fails to agree with good practice. This class of remedies is that of the mineral acids, preferably phosphoric or nitric acid; given well diluted in small doses, just before or during meals. While I cannot agree with the opinion that nitric acid, for example, is a direct oxidizer, and while the actual amount of oxygen that could be liberated from the few drops of nitric acid taken into the system would be in itself of no value, yet I have no doubt from clinical observation that this agent not only assists digestive action, but really does, in whatever way, chemical or dynamical, stimulate general oxidizing processes. It may be like the first push to a row of bricks that causes all to topple—initiatory of general oxidation. Surprising improvement often results from its use in so-called neurasthenic patients—in reality the dyspeptic subjects of the gouty diathesis. The inhalation of oxygen would seem to be theoretically indicated. As a rule, a healthy man in moderate physical activity inhales in the air more oxygen than his blood can appropriate. Nevertheless, in some conditions of ill-health, and in the gouty diathesis especially, the occasional filling of the pulmonary cavity with pure oxygen seems to induce greater absorptive activity, whether mechanically or chemically I cannot state. This measure, or the inhalation of compressed air, may then be appropriately employed at times, though such methods can never replace open-air exercise and should not be allowed entirely to substitute the latter.

In the particular case which has served as a thread upon which to string our therapeutic observations, the following treatment was pursued. It will be remembered that the prominent symptoms were vertigo, headache, and confusion of ideas. A large dose of Rochelle salts was ordered for immediate effect, and free purgation with smaller doses continued for a few days, when a pill of euonymin and nux vomica was substituted. For disciplinary purposes, a strict diet of skimmed milk was instituted, the other allowable foods being gradually added. Thus the patient was led to regard as a liberal diet, that against which he would in the first instance have rebelled. As much rest from business as pressing affairs would permit was recommended, and the time thus gained devoted to moderate open-air exercise, walking, and riding.

Warm Carlsbad water slowly sipped before breakfast and before dinner, and the mixture of potassium and lithium citrates three times daily, between meals, was prescribed at first; and with the disappearance of the brick-dust sediment from the urine, dilute phosphoric acid at meals was substituted for the mixed alkalies. The habitual use of the Carlsbad water was recommended. Cool bathing, sea bathing, and occasional Turkish baths were prescribed, at appropriate seasons. Improvement was rapid, and the patient will probably be comfortable as long as he obeys orders.

ORIGINAL ARTICLES.

APOSTOLI'S METHOD OF TREATMENT OF UTERINE FIBROIDS.[1]

BY HORATIO R. BIGELOW, M.D.

THE name of Apostoli will always be associated in the minds of gynecologists with a plan of treatment which he, more than all others, has elaborated, differentiated, and systematized. From an examination of the many and varied diseases which seek surcease from suffering at his hands, lessons have been learned which must bear fruit as the ages go and come. Others will take up the work, and round it out; others may improve upon it, may clear up some of the doubtful points that now surround it; others will add to it wealth of clinical detail, but the glory of it will be Apostoli's long after time has put an end to unfriendly criticism or to personal rancor—and when his name, too, shall be added to those who have created new eras in scientific progress.

The manner of this paper has been a subject of some concern to me. It was a serious question whether I should enter into a discussion of the salient physical and physiological laws that modern investigation has made familiar to most students—whether or not it were better to consider the tributes of theorists upon points which the infancy of electrical science has not had time to substantiate, and a consideration of which would involve much empty speculation; or whether to write in homely fashion of ways, means, and facts, in such wise as to be instructive and convincing. I have chosen the latter, simply premising that he who seeks to do a perfect work in this department must acquaint himself, and that right well, with the great underlying principles of the physical laws of electricity, and of these in relation to their physiological bearings, and that he should have some personal acquaintance with the *feel* and *results* of the different currents in different parts of the body.

I shall have a word to say upon the armamentarium, for no man can wage a successful combat with faulty weapons—then shall ask the reader to go over with

[1] Communicated to the Obstetrical Society of Philadelphia.

me questions of chemical action, of constancy, of tension, and of inter-polar action, and finally we will discuss together the methods of application and the clinical facts demonstrated at Apostoli's clinic.

The armamentarium. — A galvanic battery, a faradic battery, a collector, a galvanometer, intra-uterine electrodes for both currents, and one for carrying both the positive and negative of the induced current within the uterus. Bulbous charcoal-pointed electrodes of various sizes for galvano-caustic applications; intra-uterine platinum electrodes, and large bulbous vaginal and rectal electrodes. The belly plate can be made of potter's clay, in which the metal plate is buried—or better, perhaps, is the plate devised by Martin, of Chicago.

The galvanic battery. A good battery must have—

1. A slight chemical action.
2. Great constancy.

It is well to remember that the *quantity* of electricity is not synonymous with *tension.* With a pile of great chemical action we have always burning pain and lesions of the skin. A number of elements united does not give a larger quantity of electricity than one element, but it gives a *tension* capable of overcoming resistance and of accomplishing results which a single element could not do. Therefore we seek a battery which will generate a current of sufficient *tension* to overcome the obstacle. A battery too, in which the chemical action is great, is expensive, because of the degeneration of material, and it is not reliable in constancy. A perfect pile is one in which—

1. The evolution of gas is avoided.
2. In which there shall be the slightest possible chemical change of the liquids of the battery.
3. In which the metal plates shall not be changed by the deposit of the chemical action.

Constancy, which is the most important consideration for the doctor, can be had by using a rheostat, but as this is expensive and necessitates a great number of elements, it is better to select a battery with a constant pile.

The Leclanché cell. The current is here generated by the action of the chlor-hydrate of ammonium upon charcoal and the peroxide of manganese. These cells have grown to be very popular, and they will give a constant current when in use for 120 to 130 hours, without being recharged. But I do not quite like the combination, since the chemical action is always considerable.

The Daniell element. This is formed of two metals and two liquids: zinc and copper, and water acidulated with sulphuric acid, and a solution of the sulphate of copper. This pile, or the same modified by Dr. Onimus, is one of the very best. It has great constancy and small chemical action. The batteries of the bisulphate or protosulphate of mercury are not useful because of the great chemical action. M. Gaiffé makes an excellent battery of the chloride of silver, which is valuable since it can be used several months. It may be added, however, that after six months of use the elements are destroyed.

The Leclanché cells, or those of Daniell, are probably the best. With 36 Leclanché cells one ought to get a strength of 300 to 350 milliampères. If a rheostat is used, a much larger number of cells will be required, because the greater the resistance the greater must be the tension. This entails large extra expense and is really not necessary with the sulphate of copper battery.

The collector. This keyboard arrangement is invaluable; for, with one hand holding the electrode in place, the operator can at will bring into the circuit any number of couples desired; he can change the current at will, or can produce voltaic shocks.

The galvanometer. To measure the dosage exactly is an absolute prerequisite of success. The one of which I know most is that made by Gaiffé, and of which the recorded error is only 2 or 3 per cent. Apostoli gives the following records: *Edelmann's* galvanometer without "shunt" fails to the amount of 7.5 per cent.; with "shunt" the defect increases to 20 per cent. It registered $\frac{160}{1000}$ ampère, instead of $\frac{200}{1000}$ ampère. *Waite's* is equally unreliable. The constants are:

Without shunt .	error	6 per cent. at least.
With shunt	10–32	" " "
With shunt	100–25	" " "

The faradic battery. Duchenne, of Boulogne, pointed out the difference in action between the current of the first helix (extra current) and that of the second helix (the induced current). These points were disputed by Becquerel, who claimed that the physiological differences were due to physical differences, and that currents of the same *intensity*, *tension*, and *duration* produced the same effects. The current of the second helix, which is made of long, thin wire, will, of course, give a greater tension than that of the first helix, which is of short and thick wire. Onimus claims that, when the tension is the same, the extra current (first helix) operates more appreciably upon the sensibility of muscles and upon the excitability of certain organs. For the uses of the gynecologist, especially within the uterus, the induced current of high tension from the long, thin wire will be the one generally used. The little well-known portable battery of Gaiffé, with a chloride of silver pile, is excellent and answers every purpose. It has also the merit of being cheap. This consists of two elements contained in one partition of a small box of gutta percha. The vibrator can be entered or withdrawn by means of a handle. A

band of copper, elastic and connected with this, permits a just regulation of the currents. A graduated tube penetrates between the central barrier of soft iron and the inductive bobbin, so that by withdrawing it or pushing it in we get a greater or less intensity of current. Two interruptions per second, I have found, were tolerated without discomfort, but the pain increases with the number of the interruptions.

The therapeutics of the induced and of the continuous currents.—"The induced current penetrates the tissue profoundly by reason of its high tension, but, contrary to physical laws, the continuous current of low tension has a larger and more profound action. We have proved the diffusion of the electric currents, and that the galvanic current propels itself through organic tissues, its influence being felt at remote points; the current *never remains limited between the two poles.*" (Onimus.) "If we now consider the differences that exist between continuous and induced currents during their *constant* passage, we find that it is not difficult to distinguish between them, as the line of demarcation is clear. The induced current acts for an exceedingly short time during its passage. It produces at each instant of passage a greater or less excitation, and causes molecular shock. The induced current acts mechanically as an excitant, but the continuous current penetrates more gradually the tissues, but more profoundly, acting chemically in such a way as to produce molecular orientation and chemical combinations." (Onimus.)

The induced current traversing the liquid, semi-liquid, or solid substances that go to form the human body, produces no chemical action whatever—simply a mechanical molecular disturbance. The continuous current, however, not only produces its chemical action at the poles, but this molecular disintegration and orientation are propagated throughout the zone between the poles. This question has excited much discussion recently before the British Gynecological Society, and many letters have appeared in the pages of the *British Medical Journal* upon the same subject; Dr. Bantock and others who are opposed to the results of the Apostoli method, believing them to be grossly exaggerated, but who, also, it is easy to see, have given the subject but superficial study, claiming that the action of the galvanic currents was simply at the poles, that some little effect was produced in the uterine fibres, causing them to contract, and that this contraction might be the reason of the apparent diminution of the tumor; but in a most illogical way proceeded to argue that the continuous current passed through a fibroid removed from the body would have no effect whatever. They believed that tumors were never diminished or dissipated, etc.; all of which was mere argument, since the fact is as proven as any fact of record, that fibroids are diminished, and that the action of the current is not limited to the poles. When such men as Sir Spencer Wells, Keith (father and son), Rutherford, Simpson, and others, who have done as magnificent surgical work as any surgeon living; when Martin, Engelmann, and Woodham Webb, all state that they have diminished and even dissipated such tumors by this plan; when reports from Italy and Spain confirm the same, by detailing results equally good, and when we add to this the record of thirty others who have reported similar cases, all men of unimpeachable honor and highly esteemed in the profession, the puerility of the arguments cited becomes very apparent.

Just what the galvano-caustic action is that dissipates a tumor is not yet determined. Whether it coagulates the albuminoids, or creates interstitial inflammation, I do not know. It *does reduce the tumor*, and it remains for us to find out the *why*. I believe, however, that time will demonstrate a change of *cell-life* in addition to the purely chemical action which takes place around the poles. To quote it at length would consume overmuch time, but one may read with much profit Dr. Apostoli's paper, which was read at the British Medical Association, at the Glasgow meeting, August, 1888, on "Some Novelties in my Electrical Treatment of Uterine Fibroids, with Answers to Objections." In his clinic in Paris the induced current is not often used. It has a wondrous effect, however, upon the ovarian pain in hysterical women. Both the + and the — poles are carried to the fundus through an insulated sound, at the base of which is a square cap for the attachment of the wires. I have seen now twenty cases of this kind, and every woman received immediate benefit after a séance of ten or fifteen minutes

Uterine fibroids.—In no clinic upon the continent have I had such large opportunities for studying and examining uterine fibroids. The number of women is always large, presenting every variety of shape, position and size of tumor. Each case is regularly entered upon the record book, together with exact measurements of the tumor and the diagnosis, all of which may be confirmed by the medical gentlemen present. If the case is one of unusual interest, a plaster cast is made of the woman's abdomen. After each treatment the measurements are again taken and noted. The record of each case is open to the free investigation of anyone, and anyone may question the patients, examine or measure them. Everything done here is frank, honest, and above-board. There is no secret about it—statistics are not garbled, or manufactured to defend a theory. I have seen a large number of bleeding fibroids—some very bad, indeed—but I have yet to see my first case that failed to respond immediately to the continuous current, the positive pole being within the uterus. The strength of the current will vary with the amount of resistance and tolerance, some women bear large doses without inconvenience. I have seen Apostoli carry the current quite often up to 350 milliampères without any discomfort to the

patient. If the tumor be hard, and if the plate on the abdomen be large and fit snugly, I can see no reason why a current could not be increased to 500 milliampères or more without risk, though such an amount can rarely be demanded.

In arresting a hemorrhage it is most important that every part of the lining membrane of the uterus should be treated—and that the bulbous-pointed electrode should be large enough to fit tightly, so as to embrace all surfaces. No hemorrhage, however severe it may be, will resist this treatment if rightly carried out. Now I would put the question squarely and fairly: If Tait's operation, so called, was devised solely for the purpose of arresting the hemorrhage of a bleeding fibroid, and if this operation is attended with danger, is it not immeasurably better to resort to a method which is unattended with any risk of life, which is immediate, and which entails no mutilation?

The records of Apostoli's method are quite as reliable as those of any laparotomist, and I have not seen or heard of a case of failure. I remember the case of Mme. Richard, and so will the many gentlemen who worked with me at Apostoli's clinic. She had a large bleeding fibroid; had to be carried up stairs; weak, feeble, and blanched. Two applications arrested the hemorrhage entirely, and now under continued application the tumor shows signs of diminution. Two other cases come to me now, one sent by Dr. Péan and the other by Dr. Labbé, both cured of the hemorrhage, and in each the tumor is diminishing. The assistant of Dr. Simpson, Dr. Wright; the assistant of Dr. Slavanjsky, of St. Petersburg, Dr. Massin; Dr. Matos, of Barcelona; Dr. Hall, of Baltimore; Dr. Hobart, of Boston; Dr. Smith, of the U. S. Navy, all of them watched these cases with me. We will go a step farther. The continuous current will arrest the hemorrhage. I affirm also that it will very appreciably diminish the size of the tumor.

A very notable case is that of Mme. Lejeune, who had a large, lobulated fibroid, reaching two fingers' breadth above the umbilicus, and reaching down in the iliac fossa of the left side. She was the directress of a large public school, but for some time was unable to attend to her duties. After five *galvano-punctures* she resumed her duties, and the tumor can be well limited now to a distance midway between the symphysis pubis and the umbilicus. It is also much softer. In six other women the reduction of size is most considerable, and in one the tumor is only barely perceptible. Plaster casts of these women are to be seen at the clinic.

The punctures are made with a lance-pointed steel needle, with a penetrating depth of 1-3 centimetres, the *negative* galvano-caustic being usually resorted to. The needle is insulated in a rubber tube, up to the exact point of penetration. The insulator is pressed against the most prominent point of the tumor, which is usually in the lateral fornix, and the needle is plunged in—being careful to avoid a pulsating surface. Everything is rigorously antiseptic. The bed of potter's clay, being very pliable, adapts itself readily to the irregularities of the abdominal surface. The strength of the current used is from 100 to 300 milliampères. Many of these women who at the beginning of the treatment were almost bed-ridden, are now pursuing their usual avocations, and not one of them has ever had a bad symptom. Granting then, as needs we must, that the records in these reported cases are quite as reliable and trustworthy as are those of any surgeon, I again ask, Why perform the operation of Mr. Tait, which has for an ultimate object reduction of size of the tumor, by setting up the menopause, if electricity will produce the result more speedily, more safely, more surely, and to a more considerable extent?

Dr. Rutherford reports a case in which the tumor entirely disappeared under the plan of Apostoli, and Mr. Webb, of London, told me that he knew of a similar instance. All of us here, who attend the clinic, have seen a case in which the tumor is with difficulty made out. I ask again, Should the case be a suitable one for this method, why resort to the dangerous operation of laparotomy until electricity has been given a fair trial by competent persons? Apostoli's method arrests hemorrhage, diminishes size, relieves pain, and improves nutrition, without endangering life. Is there anything known to surgery which can offer as much?

Catarrhal salpingitis yields kindly to the simple action of the continuous current—one pole in the uterus. Pyo-salpingitis is more stubborn, and I am not ready to offer any decided opinion quite yet. I have seen Dr. Apostoli puncture (negative) the tube, then enlarge the incision and insert a drainage tube, in a woman bed-ridden with a specific purulent salpingitis. She is now performing her duties comfortably, but there is considerable discharge. In another case, one galvano-puncture relieved the woman to such an extent that she confesses to being well, and there is no abnormal feel of the tube either by vaginal or rectal touch. There is a large field here for study—a profitable one too. In the French Academy of Medicine they are discussing methods of drainage by uterus and vagina, without the necessity of operating, so that the minds of the surgeons themselves are turned in conservative directions. I am sure that the time is in the near future when electricity shall solve the riddle.

Metritis.—In an interesting monograph on this subject, under the caption: "On a New Treatment of Chronic Metritis," by Dr. Apostoli (translated by Dr. A. Lapthorn Smith), it is written:

"In the presence of a metritis of an anatomical form only slightly characteristic, when we are in doubt, and

when there is reason to ask ourselves the question whether the case is suitable for faradization or chemical galvano-cauterization, this is the practical and clinical means of deciding the question: We should try first faradization; if it is well borne from the beginning, on an average after the third or fourth application we should have obtained either marked relief, which would induce us to continue the same treatment—or a failure, in which case intra-uterine galvano-cauterization would be required. On the other hand, an improvement, even very marked at the outset, may wear itself out very soon, as it frequently does, and there again faradization must be replaced by galvano-cauterizations."

Dr. Apostoli concludes as follows:

"In establishing the therapeutical limits of the induced or faradic current, applied according to my double or bi-polar method: it is an excellent and sometimes sovereign remedy in certain cases (recent subinvolution, chronic metritis in the first stage); inefficacious, or at least very insufficient in others (such as chronic metritis in its later stages), and endometritis in any form."

I should like to commend this little book to the earnest study of all those interested in this subject, because it deals fully with all the methods, and in the appendix gives much valuable information as to the faradization of the uterus after labor, as well as to the use of the continuous current in fibroid tumors. It covers much ground within a small space. I have not yet treated, neither have I seen treated, a case of metritis after this method.

Endometritis.—I have seen a large number of these cases benefited by the continuous current, the positive pole being within the uterus. I have the records of four women who suffered from a fungoid condition of the endometrium, and in all of whom the benefit was marked. One girl, with weak eyes and coxalgia, with a specific endometritis and a not clearly defined salpingitis, grew better rapidly, but after each séance had quite sharp attacks of nausea and nervousness. In all forms of ulceration or hemorrhage the positive pole is indicated. This pole leaves a *white* scar, while the negative pole gives a deep *violet* scar. The positive pole is coagulating or hemostatic, and is the one around which the acids collect. Apostoli claims its action to be twofold: First, it arrests the hemorrhage; and secondly, owing to the retractibility of the positive cicatrices and to the greater or less atresia which follows it, a return of the hemorrhage later on is guarded against.

Peri-uterine inflammation.—Dr. Apostoli faradizes every woman, even when under an acute attack of inflammation, observing the following conditions:

"*a.* I proscribe every faradization that would cause the least pain, and expressly that of quantity, engendered by the bobbin with short and thick wire.

"*b.* I use for such cases the bobbin with long and thin wire, from which I obtain a current of tension on account of its specially anodyne effects.

"*c.* I begin with a simple vaginal application, by means of a large bi-polar electrode, the point of which is placed against the inflamed part.

"*d.* I only employ a current easily bearable, so as to cause no suffering nor any excitement to the patient, as this would insure an entire failure of the treatment.

"*e.* All the success of this medication depends upon making the first sittings sedative, so that they may serve as a prelude to more active measures; and the faradization will only become hyposthenic on the double condition of its low intensity and its long duration.

"*f.* Each sitting should last 5, 10, 15, 20, or 25 minutes, as may be required, and should not terminate before the patient spontaneously declares that she is better and suffers less.

"*g.* It is necessary to reinforce what has been said by dogmatically averring that no success will come out of this treatment unless it be managed not only without violence, but with extreme gentleness.

"*h.* There may be one or two sittings each day, as may be wanted, for lowering the febrile action, allaying pain, and bringing about what is called the subacute stage of the disease.

"*j.* Every faradization should be preceded and followed by a vaginal irrigation with the sublimate solution, and all of the sounds should be scrupulously disinfected."

In the *subacute* stage, use first bi-uterine faradization, with a current of tension; when the inflammation begins to give way, we use the intra-uterine *continuous* current, beginning first with the *positive pole* and following with the negative so soon as we are sure that the patient can bear it.

In the *chronic stage*, Apostoli uses with great success the continuous current and galvano-puncture (negative), making the puncture in the diseased part itself. In old cases of perimetritis, with much tenderness around the utero-sacral ligaments—cases which are very common and stubborn—much relief may be obtained by pressing the large bulbous vaginal electrode well up into the posterior fornix, while the negative pole is on the abdomen, using the induced current of high tension.

It were much easier to write a book upon these subjects than to outline them in mere profile, because, naturally enough, many points will come up for discussion which are not here discussed for want of time. Apostoli has gone into the whole matter very thoroughly in his numerous contributions to medical literature. They are easy of access, and I commend them to the earnest attention of those who have knotty points to be solved.

PARIS, January, 1889.

A CASE OF ACUTE YELLOW ATROPHY OF THE LIVER.

BY MARTIN W. BARR, M.D.,

RESIDENT PHYSICIAN AT PENNA. INSTITUTION FOR FEEBLE-MINDED CHILDREN, ELWYN.

I THINK in the practice of every conscientious physician there comes a time, while attending a case of desperate illness, when, after he has given one remedy, he regrets that he has not given some other: when he searches his books for assistance and is confronted by long lists of drugs, one seemingly as efficacious as another. But he gets nothing definite. Then how gladly would he appreciate

some specific information—some report of a similar case—no matter how crude or meagre it might be. For this reason I have tried to describe my case accurately, and have written out some of the prescriptions used.

It will be noticed that my treatment was extremely simple. I consider the nitro-hydrochloric acid dilute was my sheet-anchor. I used it for two reasons: for the reported action of both nitric and hydrochloric acids on the liver, and because I obtained such excellent results from the combination during an epidemic of typhoid fever some years ago. Probably any one of the mineral acids might act as happily.

The first authentic record of this disease was made by Morgagni,[1] who considered it extremely dangerous and difficult to cure. His opinion is endorsed by Graves, Frerichs, Rokitansky, Tanner, Buhl, Hilton Fagge, Grainger Stewart, Ozonam, Legg, Liebermeister, Harley, Oppolzer, Bright, Horaczek, Wagner, Späth, Von Dusch, Guckelberger, and Bartholow—besides many other well-known writers on hepatology.

Hanlon reports three cases in one family in one year, one of whom recovered. Griffin reports four cases in one house occurring within a short time of each other, two of whom recovered.

On November 2, 1888, I was hastily summoned to see Rissie R., a girl aged twelve years, residing in Cecil County, Md. The messenger briefly stated that she had had a congestive chill on the previous day, and was then suffering from a second. I will here mention that the autumn had been warm and rather dry, with but little frost, and her home was in a malarious district. Family history was good, ancestors on both sides having been for generations sturdy, healthy farmers, who had, for the most part, died of old age.

Rissie had never been a very robust child, and she had been troubled with chills since September. Her mother, without consulting a physician, dosed her freely with quinine, and, with her ears still ringing with the drug, she would have chill after chill.

It was almost two hours after my summons before I reached the patient, and the chill had passed off, leaving her much exhausted. She was a perfect blonde, with a fair complexion, light hair, and blue eyes. I found her slightly jaundiced, tongue heavily coated, breath fetid; pulse strong and rapid; temperature 103°. Prescribed ℈j quiniæ sulph. in solution, to be taken every four hours for twenty-four hours. I charged the system so heavily with this drug in order to prevent any possible recurrence of a third congestive chill.

3d. At my second visit I found my patient decidedly worse. There had been no chill, but the jaundice had become most intense. She was as yellow as if she had been dyed with saffron, the color of the conjunctiva being especially brilliant. Even the lips and gums had assumed a bright salmon color. The teeth were covered with brownish sordes, slightly tinged with green. The tongue was heavily coated, the fur being a bright grass green. Late the previous night distressing spells of vomiting had come on. The emesis was green, and was always preceded by a period of extreme nausea and retching. These periods became more and more frequent until they occurred every ten minutes, or oftener. Between each vomiting spell the child would lie with closed eyes in a lethargic state, only rousing occasionally to ask for ice. The urine was dark-colored and scanty. Pulse 124; temperature 104°. Extreme tenderness in epigastric and right hypochondriac regions; the slightest touch being sufficient to elicit cries of pain from the patient. On percussion I could distinguish marked diminution in size of liver, but could detect no increase in size of spleen. I then made a positive diagnosis of what I had before suspected—acute yellow atrophy of the liver.

I immediately prescribed acidi nitro-hydrochloric. dil. ♏v, every three hours, in water. I continued this drug (though less frequently in the later stages of the disease) uninterruptedly night and day until convalescence.

For the nausea and vomiting I gave the following prescription:

℞.—Bismuth. subnit. . . . . ℥ij.
Acidi carbolic. . . . . gr. iv.
Aquæ menth. pip. . . . . f℥vj.
Aquæ q. s., ad . . . . f℥iij.—M.
Sig.—Teaspoonful in water every two hours.

Had a large, strong mustard plaster placed over the hepatic region.

I ordered as much milk, combined with lime-water, as the patient could be induced to take. Also brandy and ice *ad libitum*.

4th. Patient passed a bad night. Nausea and vomiting continued unabated. Some petechiæ on right side of trunk—but not very marked. Considerable pain on micturition.

5th. Patient passed another wretched night. Nausea and vomiting still present—if anything, slightly more intense than before. Vomit had become chocolate-colored and bloody. Milk was regurgitated in large curds almost as soon as swallowed. Retention of urine and constipation. Intense pain over whole abdomen. Discontinued bismuth and carbolic acid mixture. Prescribed minute doses of calomel 1–10 gr. every hour. Gave a hypodermatic injection (morphinæ sulphas, 1–6 gr., atropinæ sulphas, 1–180 gr.) in abdomen.

For the retention of urine I prescribed the following:

℞.—Fld. ext. hyoscyamus . . gtt. xxx.
Sodæ bicarb. . . . . gr. xxxviij.
Aquæ q. s., ad . . . . f℥j.—M.
Sig.—Teaspoonful in cold water every three hours until patient micturates.

I ordered a rectal injection of hot water, castile soap, and glycerine. The patient had a copious dark-colored passage containing a great deal of blood. She fainted shortly after the injection, and

[1] De sedibus et causis morborum, Epist. x., 7, et Epist. xxxvii., 2, 4.

remained unconscious for some time. Was massaged briskly and revived. I allowed the mother, at her earnest request, to apply various poultices, spice plasters, etc., to the hepatic region.

6th. Found my patient somewhat better, but extremely weak. She passed a comparatively quiet night; the periods of nausea and vomiting were lessened in frequency and duration. After taking several doses of the hyoscyamus mixture the patient micturated freely. Had bowels moved by enema; stools dark and tarry.

7th. Jaundice had begun to fade. Nausea and vomiting lessened perceptibly. Pain in abdomen had returned in all its intensity. Administered another hypodermatic injection. No movement from bowels. Prescribed aloin 1-5 gr. three times a day.

8th. Was much improved. Had emerged from lethargic state and asked for chicken. The vomiting had ceased entirely, but occasionally she would have slight attacks of nausea. Jaundice was fast disappearing, also the petechiæ. Had had a dark passage early in the morning containing but little blood. The temperature, which had continued high during the whole of the attack, had now sunk to normal.

From this time on, the patient began steadily to improve. The jaundice faded rapidly, and the liver almost regained its normal size. I continued the dilute nitro-hydrochloric acid in five gtt. doses every four hours from November 8th to the 16th. From 16th to 25th, gave it three times a day. By this time the patient was practically well. Stopped the acid and ordered tinct. cinchon. comp. and a plain wholesome diet.

I did not see her again, but, on December 24th, met parents, and they told me she was in better physical condition than she had been for years.

THE TREATMENT OF CLUB-FOOT.[1]

By THOMAS GEORGE MORTON, M.D.,
SURGEON TO THE PENNSYLVANIA HOSPITAL.

I HAVE recently had under care a number of cases of club-foot which I have treated by combinations of tenotomy, the open incision, and tarsectomy. In four cases both feet were involved. In one case the deformity was a severe equino-valgus, all the other cases were types of severe equino-varus, in which the patients walked upon the dorsi of the feet. Two cases were females; the youngest patient was four years of age, the oldest eighteen; all made excellent recoveries. Two of this series of operations were performed by Dr. T. S. K. Morton.

The proper time to treat most successfully talipes is at birth, when the infant foot readily yields to stretching and manipulation; although infantile varus can always be overcome, more or less equinus may persist and eventually require division of the tendo Achillis, but this operation should not be considered until the child is ready to walk.

Without any treatment deformities of the feet rapidly increase, the tissues become unyielding and the child eventually walks upon the dorsum of the foot, while the change which subsequently takes place in the tarsus practically precludes complete and satisfactory correction without an excision of a wedge, open incision on the inner side of the foot, and tenotomy.

The following cases illustrate this class of deformities:

CASE I. *Double equino-varus.* — James B., æt. sixteen, congenital double talipes equino-varus. Has never been operated upon. Legs are very poorly developed and he walks upon the dorsi of the feet.

October 9. I tenotomized all resisting structures in the left (his best) foot, broke it as well into position as possible, and placed it in position on a right-angle tin splint.

Result not very favorable.

31st. I excised the cuboid bone from the right foot and was thereby enabled to bring it into excellent position. Primary union of wound. Result perfect.

December 2. Left cuboid excised by Dr. Thomas S. K. Morton and foot brought into position. Primary union in this wound also. Result perfect. For some months he wore braces but then abandoned them, since which time he has worn ordinary shoes. With shoes on, no one could tell that he had ever had talipes, and scarcely could one believe upon looking at his bare feet what they had been before operation.

CASE II. *Equino-varus and equino-valgus*—I. S., aged eighteen, severe congenital equino-varus of the right foot, and equino-valgus of the left; both limbs poorly developed. I divided all the tendons concerned in the deformity, then being unable to bring the foot into a good position I excised a wedge of the tarsus, the base included the cuboid, the external and middle cuneiform and part of the scaphoid. Primary union and a perfect result followed.

Two months later, after tenotomy of the peronei and tendo Achillis, I removed a wedge from the inner side of the right foot to overcome the equino-valgus. The wedge included the scaphoid, and part of the internal, middle, and external cuneiform bones.

The result was entirely satisfactory; primary union followed the operation. Patient finally acquired perfectly useful and even very presentable feet.

CASE III. *Equino-varus.*—Miss X., æt. nineteen, had been operated upon in Germany when an infant. But one foot is involved; that presents a marked equino-varus with great deformity. July, 1888, Dr. T. S. K. Morton excised a wedge of tarsus of sufficient size to permit bringing the foot to a normal position. Catgut drains were used and primary union was secured. Placed in position upon right-angle tin splint and not dressed for three weeks after operation; foot then in excellent position. Oct. 1888:

[1] Read before the Philadelphia Academy of Surgery, May 6, 1889.

She is now able to wear an ordinary shoe and to walk without limp or discomfort. Result perfect.

CASE IV. *Equino-varus.*—In November last I made a tarsectomy of the left tarsus for equino-varus upon a girl of five years of age. She was one of six children, four of whom had been born with club-foot; one boy had double equino-varus; three girls had similar deformity, but confined to one foot. The parents were very robust people, and no other cases of deformity had been known in either family. I removed a wedge of the tarsus and divided all tense tendons, including the tendo Achillis, the posterior tibial, and the long flexor of the great toe. Result, as in all cases upon which I have operated in this manner, absolutely perfect, and her brace is about to be discarded for an ordinary shoe.

CASE V. *Double equino-varus.*—C. K., aged four years. No family history of talipes. Two other children free from deformity. Feb. 13: Excised wedge from left foot; usual technique. Dressed at end of three weeks; primary union; excellent position. March 21: Excision of wedge from right tarsus combined with extensive tenotomy and open incision of inner aspect of foot. Not dressed until end of fourth week. Solid union by primary intent and faultless position found.

This case is still wearing light supports, and is daily receiving massage and electricity—as, indeed, is ordered for all my cases, both before and, as soon as permissible, after operation.

CASE VI. *Double equino-varus.*—J. C., æt. four. Excision of wedge of right tarsus combined with tenotomy. Dressed in three weeks. Six weeks after first operation a wedge was likewise taken from the left tarsus and open incision made upon the inner side of the foot. Both feet perfectly restored in shape and utility.

CASE VII. *Severe equino-varus of right foot.*—Mary ——, aged twelve. Excision of usual wedge and tenotomy performed. Operation done three weeks since. Wound healed and result promises to equal in success all the others which I have performed.

The treatment of the muscles of a limb after club-foot operations is of very great importance. Congenital club-foot is the result of nerve changes, or, in other words, a sequence of intra-uterine paralysis, so that it is eminently proper that treatment after the correction of the deformity should be directed to the improvement of the nutrition of the limb. Therefore, massage, electricity, and douchings should be employed persistently for a long time subsequent to operation. In hospital dispensary work especially it is difficult to impress upon parents the absolute necessity for the long continuation of treatment after operative interference. It is usual to find the entire limb in a club-foot case less developed, the calf and thigh measurements show more or less atrophy, while in the length of the limb the difference is often very marked when compared with the normal extremity.

One important advantage gained in the treatment of club-foot by excision of a wedge from the tarsus is, that in at once correcting the deformity we avoid the necessity for the protracted use of steel braces, which are often heavy and clumsy, and which hinder the growth of the limb. If by a radical operation we can in a very short time overcome the deformity and also the tendency to recurrence and allow the child soon to wear an ordinary shoe, we most favor the development of the affected limb.

In operating for equino-varus I first section all resisting soft structures, then, if the foot cannot be brought to and held easily in a normal position, I make an incision on the outer side of the tarsus and remove a wedge with its base looking outward from the tarsal bones considered as a whole. In making this excision it is of the greatest importance that a sufficient amount of bone is removed: the apex of the wedge should come to a point almost or quite to the opposite side of the tarsus. With me the wedge will usually comprise: the anterior three-fourths of the cuboid, the whole of the external and middle cuneiform, with perhaps a shaving also from the anterior portion of the scaphoid, and the heads of the two outer metatarsal bones. If, when this much has been done, the foot does not come around to its normal position without the least resistance, I further remove the internal cuneiform, and, if also required, dissect out the remaining portion of the cuboid. For excising the wedge I employ ordinary cutting pliers in preference to the chisel, owing to the inevitable disadvantages incident to the bruising caused by the latter instrument, and because, in my hands, the cutting pliers have proved so much more accurate, easy of manipulation, and expeditious.

A HITHERTO UNDESCRIBED CAUSE FOR THE FAILURE OF THE RADICAL CURE OF HYDROCELE BY INJECTION.[1]

BY CHARLES B. NANCREDE, M.D.,
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IT hardly needs an apology for recording what appears to be a new pathological fact, yet the radical cure of hydrocele is usually so readily effected by the methods now in vogue that a paper on such a subject seems out of place. From the very frequency of the disease and the ease with which a cure is effected, the surgeon too commonly views it as a trivial affection and unhesitatingly promises a cure by the injection of iodine or carbolic acid, unless certain well-known contraindications exist, such as thickening of the sac, rigidity of its walls from calcareous deposits, etc. But despite the absence of these complications there are a certain number of cases where the confidently expressed

[1] Read before the Philadelphia Academy of Surgery, May 6, 1889.

opinion of the surgeon is *not* verified by the result, for the patient is either not benefited at all, or the case relapses in a short time, damaging the surgeon's reputation and shaking his confidence in a thoroughly reliable and safe remedy, provided the condition I propose describing be not present. Although Mr. Curling mentions one case where a "loose cartilage" was evacuated by incision, and states that certain methods of treatment are applicable in the absence of these bodies, he makes no mention of the condition I have observed, nor does he suggest the possibility that the cartilages which he so vaguely mentions may stand in a causative relation to relapses after the operation for a radical cure by the injection of iodine.

Anatomists have described under the name of hydatids of Morgagni certain fringed or pedunculated bodies situated at or about the junction of the epididymis and testicle. These probably at times contain cartilage cells, which, doubtless, when accidentally detached, form the "loose cartilages" so commonly referred to by writers as an obstacle to the radical cure of hydrocele by injection, but which are so rarely detected in practice now-a-days —in fact, I think, judging from an extensive search through the literature of the subject, that most authors have copied the statements of their predecessors.

Whether containing cartilage cells or not, it is evident from the two cases which I report, that these fringes may have calcareous matter deposited in or upon them, although the remainder of the serous sac may not be even thickened, and that the constant mechanical friction will originate and certainly keep up disease after an attempted radical cure by injection, until removed, or we have resorted to such measures as will produce total obliteration of the sac—which, it is well known, the method by injection often fails to do.

Both patients suffered much pain—an unusual symptom in hydrocele; both had recurrence after a radical operation by injection had been attempted, but it will be noticed that the effusion was located chiefly at the upper portion of the cavity, the testicle lying below, contrary to rule.

This was so marked in the first case which I saw for Dr. Barton, during his absence from the city, that I considered it to be probably an encysted hydrocele of the testicle or of the cord. It is a fair inference, then, that the injection had so altered the serous membrane that its secreting and absorbing power had again become normal—for there were no adhesions, except in the immediate neighborhood of the constant source of mechanical irritation. This is all the more probable, since one patient stated that the size of the swelling varied. Probably such concretions as well as loose cartilages are more common than is supposed, because few modern surgeons incise or excise the tunica vaginalis testis.

Before briefly reporting two cases, I would suggest the propriety, since antiseptic methods have lessened the dangers of the cutting operation, that when failure occurs after injection, even where no thickening of the sac—calcareous or otherwise—is detectable, an incision at least large enough to admit the finger should be made, the cavity explored for calcareous concretions, etc., and a large drainage tube passed through another puncture seton-wise, a practice successfully revived, I think, by my colleague, Dr. Barton—full antiseptic precautions being of course taken.

As this paper is merely a report of cases observed, with practical points suggested by them, no attempt will be made to consider exhaustively the operative surgery of this disease.

By Dr. Barton's kindness I have been furnished with the following notes of the case upon which he operated in my presence, and which first called my attention to this peculiar pathological condition.

Case I.—The patient, Mr. L., of South Carolina, had suffered three years with great pain in his testicles—especially the right one. This pain was only felt when he did not support the testicles. When sitting down with the testicles resting upon his legs he was entirely free from pain; but as soon as he stood up he suffered intensely, and was obliged to support the scrotum with his hand. His usual method of progression was with one hand in his pocket supporting the scrotum. His infirmity compelled him to confine himself to his store and to his boarding-house. His expressions of pain, his nervousness, and his mental excitement were such as to lead one to suppose that he was the victim of some mental trouble. Both testicles were enlarged and tender—particularly the right one. In the right tunica vaginalis, there was a small hydrocele, containing about one or two ounces of fluid, situated at the upper part of the vaginal sac. He had consulted a number of physicians and the hydrocele had been operated on twice—once by injection of iodine—but without benefit.

Under ether and with antiseptic precautions I opened the tunica vaginalis, liberated the fluid and explored the cavity with the finger. Directly beneath the testicle a bony mass about the size, shape, and hardness of a shrivelled grain of corn was found. Its attachments were so slight that it came away without effort and without our being able to say if it was attached to the visceral or parietal layer of the vaginal tunic. No further growths were found. A drainage tube was introduced, antiseptic dressings were applied, and he recovered without accident. Before going home he was able to walk about the city, which he did morning, noon, and night, taking more exercise of this kind in a few days than he had done in several years previously. He had no pain, though the testicle was still slightly tender on pressure.

CASE II.—My patient was an elderly man who had suffered with a moderate sized, very painful hydrocele for an indeterminate time. In April, 1888, Dr. Simes operated for the radical cure by the injection of carbolic acid. Severe inflammation followed, producing extensive sloughing of the scrotum and presumably of a portion of the vaginal tunic. When seen over a month later, the hydrocele seemed cured. Some time during the next six months—for I could get no very definite statement from him—the disease recurred, with the old symptoms of constant pain on movement. On coming under my care on April 1st, he showed me a small hydrocele, closely resembling in situation and appearance that first described.

Taught by the case seen with Dr. Barton, I opened the swelling by a free incision and considerably to my astonishment, at the junction of the upper part of the epididymis with the body of the testicle, I felt a little calcareous body like a miniature cock's-comb. I removed this with the finger, dissected out a portion of the tunica vaginalis, and, partially suturing the tunica and skin, drained the sac-cavity. Antiseptic methods carried my patient through with no untoward accidents, and at the last reports he was well and free from all his former suffering.

MEDICAL PROGRESS.

Survival after Wounds of the Heart.—DR. ANDREA CRISTIANI, Assistant to the Professor of Forensic Medicine in the University of Pisa, has lately recorded[1] a remarkable case, in which a man lived thirty-nine days after having received an incised wound of the heart. On April 22, 1888, a man, aged about twenty-five, was stabbed in several places in a brawl. One of the wounds was in the fifth interspace on the left side, about the situation of the anterior axillary line; there was a second in the eighth interspace on the same side, and another in the back on the left side, extending from the posterior border of the axilla toward the scapula. Besides these injuries, there was a stab in the left hip, and several others on the right arm. The wound first inflicted was the one in the back, the second that in the cardiac region, after receiving which the man fell to the ground, but was still able to recognize the assailants who dealt him the subsequent blows. He was carried home, and, when seen by a medical man an hour and a half later, was able to give an account of the affair. Though he lost an enormous amount of blood he did not faint, but complained of dyspnœa. The respirations numbered fifty in the minute; this lasted eight or ten days. There was slight pyrexia for twelve days, but beyond the fact that the least effort caused breathlessness and palpitation, there were apparently no particular symptoms. The wound in the fifth interspace cicatrized in seven, and that in the eighth interspace in eight days, while the one in the back took fifteen days to heal.

On the eighteenth day the patient got up, though still very weak and anæmic. On May 29th he complained of not feeling well, but in spite of this he walked into Pisa and back, a distance of ten kilometres (about six miles and a quarter) in the morning, and in the afternoon walked to a neighboring village, three kilometres (nearly two miles) from his home, with two companions. On the way back he climbed a tree in order to get a bird's nest, and on coming down fell to the ground and died in ten minutes. The necropsy showed that the stab in the fifth interspace had traversed the pericardium, and deeply wounded the wall of the left ventricle, at a distance of three and a half centimetres from the apex, without actually penetrating into the cavity. Between the edges of the wound was some soft coagulum, on removing which it was found that the deeper parts were pretty firmly united by organized blood-clot. This cicatricial tissue had quite recently given way at one spot, where there was a small opening leading into the cavity of the ventricle. The effort of climbing the tree, after the relatively severe exertion previously undergone, had burst open the partly closed wound, and broken down the frail barrier which was left between the ventricular cavity and the outside of the heart.

Dr. Cristiani attributes the long survival of the patient to the oblique course of the wound through the layers of the ventricular wall, and to the fact that the knife did not actually penetrate the cavity. The excellence of the patient's general health must also be taken into account, as owing to that there were no inflammatory complications either in the heart, the pericardium, the lungs, or the pleura. On the medical evidence the assailants were condemned to two years' imprisonment for attempted homicide.

To Dr. Cristiani's report is appended a note by DR. VITTORIO MESSERI, of Florence, relating the case of a man, aged thirty, who, on March 16, 1884, was stabbed with a thin-bladed knife in the fourth interspace one finger's breadth to the left of the sternum. He was admitted into the Hospital di Santa Maria della Consolazione at Rome, apparently in a moribund state. After some hours, however, the pulse became perceptible, and the heart sounds (both replaced by blowing murmurs) became audible. The external wound quickly healed, and the patient made such progress that he got up on the tenth day. On April 6th he felt so well that he asked to be discharged. On this being refused he flew into a passion, and walked quickly into the garden, where cyanosis with intense dyspnœa suddenly came on, and he died almost immediately. A large amount of blood was found in the pericardium and in the left pleural cavity. There was a wound of the right ventricle close to the interventricular sulcus, and a wound of the septum near its anterior margin. The former had healed, and the cicatrix had recently broken down, while the latter, on microscopic examination by Professor Marchiafava, was found to be surrounded by granulation tissue, which had transformed it into a kind of fistula.

Dr. Messeri refers to statistics collected by Professor Zanetti, from which it appears that among one hundred and fifty-nine cases of wound of the heart, in only ten was the septum perforated. In seven of these death was instantaneous, in one it took place in an hour and a quarter, in another in two hours, while in the remaining case the patient lived twenty days. — *British Medical Journal*, April 27, 1889.

The Use of Sublimate in Obstetrics.—Many practitioners of late have abstained from using sublimate of mercury in

[1] Lo Sperimentale, March, 1889, p. 245, et seq.

obstetrics owing to its poisonous character. DR. WINTERNITZ, of Tübingen, has conclusively proved by a long series of experiments, that the drug when used in solutions of 1 : 2000 has no poisonous effect whatever. He has, however, always taken certain precautions in its use. The back of the patient should be raised in order to facilitate the immediate flowing out of the solution after its injection. Great care should be taken that none of the solution enters the womb. Dr. Winternitz has used sublimate in 1644 births without ever having observed any symptoms of poisoning.—*Deutsche med. Wochenschr.*, April 18, 1889.

Transmission of Pneumonia in Pregnancy.—DR. NETTER lately brought to the notice of the Société de Biologie a case confirming the possibility of the transmission of an infectious malady from the mother to the fœtus in utero. A woman pregnant seven months and a half was admitted into the Hospital Beaujon for pneumonia of the apex of the right lung. The disease evolved regularly, and on the seventh day defervescence was produced. Two days after the fall of the body temperature the patient was delivered of a child that lived five days. At the necropsy there was found distinct pneumonia of the right upper lobe accompanying fibrinous pleurisy, pericarditis, suppurating cerebro-spinal meningitis, and otitis. Bacteriological examination demonstrated the presence of pneumococci in the lung and in the blood. It was, therefore, concluded that this pneumonia was clearly hereditary and not acquired, and that it had been transmitted by the mother to the fœtus. Moreover, Dr. Netter demonstrated by experimental proof this pneumonic transmission. A guinea-pig, whilst pregnant, was inoculated with a culture of pneumococci; these microörganisms were found in the fœtus.—*Lancet*, April 20, 1889.

Pastilles for Disinfection.—The *Rundschau für Pharmacie*, April, 1889, gives the following:

℞.—Paraffin	9½	parts.
Iodine	1	part.
Salicylic acid	2	parts.—M.

This mixture made into pastilles produces iodine and carbolic acid when burnt, and will both deodorize and disinfect the sick-room.

On Tubercle Bacilli.—PROF. KREMIANSKI, of Kharkoff, whose name is known in connection with the so-called aniline treatment of phthisis, has just published, in conjunction with Dr. Tseslinski, an article in the *Meditsinskoë Obozrénic*, on the importance of frequent microscopical examination of the sputum both for diagnostic and for therapeutic purposes, in cases where phthisis is or may be present. The patients examined amounted to 931, and they were most of them seen in Prof. Kremianski's polyclinic or out-patient department, something like 10,000 microscopical observations having been made during the course of the last two years. In addition, very thorough physical examinations were carried out, not merely by means of the stethoscope, but with the help of the spirometer, manometer, thoracometer, thermometer, and weighing machine. As far as possible, also, very complete notes were taken of the effects of different remedies.

Of the 931 cases, tubercle bacilli were found in 570, or in 61 per cent., including cases of the most diverse description, some having cavities, some apex consolidation, and some merely signs of bronchitis or bronchopleuritis. Thus, of the 570 cases presenting bacilli, 220, or 38 per cent., had cavities; 229, or 40 per cent., had apex consolidation; 19, or 3 per cent., had simple "bronchitis;" and 5, or 0.8 per cent., had "bronchopleuritis." A considerable number (97) of the cases were sent by medical men to have the sputum examined for the purpose of diagnosis. It was by no means uncommon to find a complete absence of bacilli in the sputum of patients presenting the clearest physical signs of phthisis—consolidation, and even cavities. Of 238 patients with cavities, bacilli were absent in 18, or in 7 per cent. Of 419 cases of consolidation, bacilli were absent in 190, or in 45 per cent. Of 54 cases of "bronchitis," they were absent in only 35, or in 65 per cent. Bacilli were never found in cases of uncomplicated emphysema—*i. e.*, where there were no cavities or consolidation in addition.

With regard to Prof. Kremianski's special method of treatment, while it was only successful in entirely arresting the development of bacilli in about 30 cases, it produced a cessation of the ordinary symptoms of phthisis—cough, debility, fever, sweats, etc.—in about 300 cases.—*Lancet*, April 27, 1889.

Cornutin in Obstetrics and Gynecology.—DR. H. THOMSON reports in the *Centbl. f. Gynäk.*, No. 11, some results obtained with cornutin at the Clinic of Professor Küstner at Dorpat. According to Dr. Kobert, the remedy was administered either subcutaneously, in the following formula:

℞.—Cornutin	grain	¾.
Water	ʒijss.	

Mix, make solution, and add

Hydrochloric acid . . .	gtt.	iv.

or, in the form of pills:

℞.—Cornutin	grains	1⅓.
Hydrate of aluminium . . .	"	46.

add water and glycerine āā q. s. for twenty pills.

Dose, two to three pills.

The cornutin in solution generally is not to be recommended, as it becomes cloudy and unfit for use in a short time. In weak or inefficient pains the use of this drug is, according to Drs. Thomson and Erhard, not to be recommended, while in atonic hemorrhage or after abortion it is of great value. Especially rapid is its action in metro- and menorrhagia following endometritis, metritis and inflammatory conditions of the uterine appendages. In two cases of menorrhagia the result of endometritis, from one-third to one-half grain of the drug, subcutaneously administered, produced intense lumbar pains followed by complete cessation of the hemorrhage within ten minutes. The influence of the drug lasted for two hours, after which another dose was necessary. In a case of very severe metrorrhagia caused by double ovarian tumors, two three-quarter-grain doses gave entire relief.

The average dose of this drug is from one-thirty-second to one-eighth grain subcutaneously and from one-

eighth to one-fifth grain by the mouth.—*Wiener med. Presse*, March 31, 1889.

On the Treatment of Whooping-cough.—DR. TORDEUS, of the Hôpital St. Pierre, Brussels, in a clinical lecture on whooping-cough, concludes with a few words as to the treatment he adopts. He has no faith at all in the administration of preparations of belladonna for the purpose of preventing the development of the disease; the only prophylactic measure which, in his opinion, is worthy of any reliance being the rigid isolation of the patients. He recommends that as soon as whooping-cough has broken out in a family all the other members who have not already had the disease should be sent away, especially those who may be weak, rickety, or very young, as such are predisposed to bronchitic and pulmonary inflammations. Before the children which have been sent away are allowed to return, a thorough process of disinfection should be carried out, not only of the room occupied by the patient, but of all objects with which he may have come in contact. This is to be effected by means of carbolic acid, chloride of zinc, the vapor of sulphur, boiling water, or the hot-air chamber, according to the nature of the things to be disinfected.

As to medicine, during the early or catarrhal stage ipecacuanha and bicarbonate of soda should be given, with the object of rendering the phlegm less thick and tenacious; afterward, when the nature of the disorder has declared itself, germicides—as carbolic acid, salicylic acid, benzoic acid, sulphate of quinine, resorcin, etc.—should be prescribed. M. Tordeus especially recommends inhalations of a three to five per cent. solution of benzoate of soda, even in the case of very young children, though he does not specify the kind of apparatus he employs for this purpose. In order to moderate the violence of the attacks, bromide of potassium, oxide of zinc, belladonna, hyoscyamus, cocaine, antipyrin, or chloral may be given. As the disease is beginning to disappear, expectorants, such as chloride of ammonium, senega, and liquorice, are useful; and, finally, anæmia and debility during convalescence may be treated by country air, cod-liver oil, preparations of iron, quinine, and arsenic, and nourishing diet. Where symptoms of broncho-pneumonia show themselves, all depressing drugs must, of course, be avoided. In such cases M. Tordeus recommends wet packs and carbonate of ammonium, combined with alcohol.—*Lancet*, April 27, 1889.

Puerperal Infection.—As a result of numerous investigations, carefully carried out, DR. E. CZERNIEWSKI (*Archiv für Gynäk.*, vol. 1, No. 33, 1888) gives the following conclusions:

1. Microörganisms are found in the uterine cavity of healthy lying-in-women during the lochial discharge in exceptional cases only, from which it may be concluded that,

2. The lochia of healthy lying-in-women possesses neither pyogenic nor inflammatory properties. (Ott, Döderlein.)

3. Streptococci will be found in the lochia of the majority of lying-in women, even when the latter are only slightly diseased.

4. In fatal puerperal cases (especially lymphatic septicæmia) streptococci may be developed from cultures of the lochia, as well as from all secretions and organs after death.

5. The streptococci found in puerperal diseases are always the same, whether taken from slight or fatal cases.

6. The streptococci can cause erysipelatous inflammation and may lead to the formation of abscesses.

7. In infected cases the streptococci can cause degeneration of the parenchymatous organs.

Treatment of Acne.—DR. ISAAC, assistant to Dr. Lassar's clinic for skin diseases in Berlin, discusses in the *Berliner klin. Wochenschr.*, No. 3, 1889, acne and its treatment. As an etiological factor in the production of acne, he considers that hereditary peculiarities in the opening of the sebaceous glands may have an influence. In such cases the sebaceous duct is wide and funnel-shaped, offering a nidus for dirt and other septic material. Though such anatomical peculiarities may in exceptional instances predispose to acne, its causes are to be sought for in disturbances of the digestive, circulatory, or of the generative apparatus. The treatment in vogue at Lassar's clinic is the following:

℞.—Naphthol β	. . . . .	10.0.
Sulph. præcipitat.	. . . . .	50.0.
Saponis virid. } Vaseline }	. . .	āā 20.0.

This salve is applied thickly to the affected portion of the skin either by a brush or a spatula, and left *in situ* for from half an hour to an hour. On the following day one notices some desquamation of the epidermis and slight irritation and retraction of the skin. This procedure is repeated every day until desquamation of the entire epidermis has taken place. Should much irritation be produced, the treatment may be temporarily stopped and the affected surface covered with an indifferent powder or with Lassar's paste. For especially stubborn cases the following modification of the ointment may be applied:

℞.—Pulv. cretæ albæ	. . . .	5.0.
Naphthol β } Camphor } Vaseline }	. . . .	āā 10.0.
Saponis virid.	. . . .	15.0.
Sulphur. præcipitat.	. . .	50.0.

The addition of camphor increases the irritative power of the ointment, which in this form should only be left on the skin fifteen minutes.

Another formula which has been found serviceable in the treatment of acne is the following:

℞.—Resorcin } Zinc. oxid. } Amyli }	. . . .	āā 5.0.
Vaseline	. . . . .	10.0

—*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1889.

Hyoscin.—DR. O. KLINKE (*Centralbl. f. Nervenhlk.*, No. 7), from a number of investigations made with this drug, reaches the following conclusions:

1. Hyoscin is, on account of its cheapness, tastelessness, and easy mode of administration, to be preferred to the other ill-tasting hypnotics now in vogue.

2. Subcutaneously as well as internally administered

one should always begin with the smallest doses, as individual tolerance of the drug varies greatly. Doses administered by the mouth should be double those administered subcutaneously; though the action of the former is somewhat retarded, it possesses the advantages of not inducing unpleasant and at times alarming symptoms. Preference is to be given to administration by the mouth, its sleep-producing action being far more certain when thus administered than when subcutaneously injected, although during the day-time the latter mode might be advantageously resorted to, to control quickly any unforeseen symptoms. It has never been found necessary to administer larger doses than $\frac{1}{250}$ gr.

3. Hyoscin paralyzes the motor and secretory centres, slows the pulse and respiration, produces dryness of the mouth and throat, and mydriasis, paralyzes the accomodation, disturbs the appetite and at times induces vomiting.

4. Hence it is used with advantage in the treatment of severe motor disturbances, constant talking, and especially in the maniacal condition of excited paralytics. In conditions of melancholia hyoscin is of little or no value, while morphia is the remedy *par excellence*.

5. No doubt remains of the power of this remedy of inducing hallucinations first of a despondent, then of an exhilarated character. It is, therefore, essential that it should be but sparingly given to recent mental cases, while older patients may receive larger doses, provided the existence of any cardiac complication be previously excluded.—*Prager med. Wochenschrift*, April 10, 1889.

Lanoline and Perchloride of Mercury.—According to a paper by DR. A. GOTTSTEIN (*Therap. Monatsch.*, March, 1889), lanoline with perchloride of mercury possesses several important surgical advantages. Koch has already shown the relative inefficacy of carbolized oil. Gottstein now asserts that although oil, lard, and fat completely prevent the action of antiseptics, lanoline with perchloride of mercury is as powerful a disinfectant as an aqueous solution of the perchloride. In the treatment of large ulcerated surfaces he considers that this combination will be serviceable, as it will minimize the risks of absorption, while it will insure a more complete covering of the affected part, and its preservative action will be more continuous. Ebstein, in the *Deutsche med. Woch.*, confirms these views, and recommends the employment of this combination in the treatment of threatened bedsores; and from Dr. George Meyer, of Berlin, comes the suggestion that it can also be used to protect the hands of surgeons during antiseptic operations. The roughness and disfigurement of the hands, caused ordinarily by strong solutions of carbolic acid, are said to be obviated by lanoline. In spite of the conflicting statements hitherto made of the absorptive powers of lanoline, it appears to have been conclusive proved that, even in the absence of perchloride of mercury, it is unfavorable to the percolation and development of microörganisms. It is highly probable that its true use as a protective has now been established by Dr. Gottstein.—*Lancet*, April 27, 1889.

Arsenic in Malaria.—DR. RICCHI, in a paper read before the Società Medico-Chirurgica, of Bologna, on March 8th, gave his experience of arsenic in the treatment of malaria. He had been able to test it on a large scale, having been in medical charge of the officers and servants of the Adriatic railway system for several years. His experiments were made in districts where the disease was particularly rife. Of 2501 men on whom the method was tried, 579 were suffering from acute and 1384 from chronic malaria. The remaining 538 were free from the disease, so far as persons can be so who live with scarcely any hygienic precautions in places where it is endemic. In the acute cases arsenic was of little use, but it gave excellent results in the chronic cases, and in the others it seemed to confer immunity, or, if they contracted the affection, it was of a mild type and easily cured with quinine. The men put on flesh and lost the pallid, cachectic look characteristic of dwellers in malarial regions. According to Dr. Ricchi, there can be no doubt that "the daily administration of arsenious acid increases the resistance of the organism to the action of the microbes of malaria." The treatment must be methodically carried out—that is, the drug must be given in time and continued as long as may be necessary.—*British Medical Journal*, April 27, 1889.

A New Deodorizer for Iodoform.—CAUBRELLE (*Bulletin de Thérap.*, cxiii. 9) recommends the following formula for deodorized iodoform:

℞.—Iodoform	. . . . .	grs. 15.
Menthol	. . . . .	gr. ¾.
Ess. lavender	. . . .	gtt. j.—M.

A little spirits of lavender added to the water in which the hands are washed will completely remove the odor of iodoform from them.

Kefir in Children's Diseases.—Kefir, a substance something like koumiss, made in the Caucasus, has long been utilized as a stimulant and easily digested food in various wasting diseases, such as phthisis. Until recently, however, it was but little known beyond the locality of its origin. Kefir has of late attracted some attention, and has been employed in some of the hospitals both of France and Germany. DR. E. KRAUSS, of the Children's Department of the Vienna Polyclinic, has collected a good deal of valuable information on the subject, which he publishes in a Vienna medical journal. Kefir consists of milk which has undergone two distinct kinds of fermentation—the alcoholic, produced by the yeast-like cells of the ferment, and the lactic acid fermentation, due to a bacillus also contained in the kefir; the actual contents being alcohol, lactic acid, carbonic acid, and peptone. It has been given to children as young as two months, and is said to have proved most valuable in gastric and intestinal catarrh.—*Lancet*, April 27, 1889.

Infantile Dyspepsia.—DR. M. J. SIMON, in the *Gazette hebd. de Méd. et de Chir.*, prescribes the following in cases of infantile dyspepsia:

℞.—Codeine	. . . .	gr. $\frac{1}{32}$ to $\frac{1}{15}$.
Magnesia Powdered crabs'-eyes	} . .	āā grs. 2.
Rhubarb	. . . .	gr. 1.
Nux vomica	. . . .	gr. $\frac{1}{8}$.—M.

One powder of the above formula should be given after each meal.

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FILTRATION THE BEST MEANS OF PURIFYING THE PUBLIC WATER SUPPLY.

No one will dispute the statement that an abundant supply of pure water is essential to the health and comfort of a community. Yet this great truth is either not properly appreciated, or its application is beset with extreme difficulties, for it is seldom that the water supplied by public works reaches a proper standard—of purity, at least. It is generally not a serious problem to obtain water in sufficient quantity for all municipal purposes, but there is frequently great difficulty in securing the proper quality. The reason is that our rivers, which are the main source of supply, are allowed to become polluted, and the evil is extending with the growth of population. Community of interests should proscribe this pernicious practice, but it does not. Legislation in this country has done very little in protecting our streams from gross pollution. No such law as the Rivers Pollution Act of England exists upon our statute books, although the necessity for such a restriction is plainly apparent.

Water polluted by sewage is unfit for use, and dangerous without purification. Apart from the conditions which give rise to disease of mild type, there is the possibility of impregnation with disease-germs which may lead to widespread sickness of a serious character. The wisest and the most economical plan, if universally adopted, is the radical measure of prevention, but as this is a utopian conception, individual communities must resort to some other method to insure the purity of their water-supply. Sedimentation, filtration, aëration, and chemical treatment are the means of purification at our disposal. All of these plans may be used conjointly, but that by filtration, which includes sedimentation, is the most practicable and efficient, and the one most commonly employed. In fact, filtration is the only possible means of removing, on a large scale, the infectious matter which water sometimes contains. Domestic filtration, which is practised to a limited extent, is at best but a partial remedy, and is often most unsatisfactorily performed. The aggregate expense imposed upon the people for its maintenance would go a great way toward procuring the most complete purification of the entire public supply.

Beside sedimentation, by which particles of suspended matter which produce the discoloration fall to the bottom, there may be used as preliminaries to filtration, both artificial aëration to assist in oxidation, and chemical treatment by which substances are added to the water in order to coagulate and render insoluble contained impurities. But filtration is the main feature of purification, by which, as Frankland and others have demonstrated, it is possible to deprive water of germ life and render it otherwise potable.

In most of the large cities of the old world, and in some of the smaller cities in this country, filtration works are deemed necessities and are maintained with the most satisfactory results. The *Deutsche medizinische Wochenschrift*, No. 3, 1889, contains an instructive account of the filtration works at Berlin, and the mode of testing their efficiency. These works have been constructed within recent years after the most approved plans, and have been operated with great satisfaction. They may therefore be looked upon as model works. There are in operation eight open and sixteen covered filters of great magnitude, which collectively are capable of delivering daily 100,000 cubic metres of filtered water. The filter-beds are composed, in the usual manner, of layers of stone of different sizes, gravel, and sand. The water is allowed to stand at least twenty-four hours before the process of filtration commences, in order to allow the deposition of suspended matter to take place. The layer of organic and inorganic matter thus formed is of great service in holding back most of the bacteria. When the purifying power of the filter begins to fail, as indicated by

proper tests, the water is drawn off, the sediment removed, and the renovated works again set in action.

In order to determine the efficiency of the process, weekly tests are made of the unfiltered water and of samples taken after filtration both from the basins and from the service pipes in a number of places throughout the city. Each test includes a chemical and a bacteriological examination of the water. No matter how great or variable the quantity of bacteria in the water before filtration, the relative number in the filtered water varies but little from a very low average. Rarely does the number of organisms in water taken from the service pipes exceed three hundred per cubic centimetre. The bacteriological examination has further demonstrated that there is no perceptible difference between the water in the service-pipes and that delivered fresh from the filter-works. The results thus obtained have led the authorities to establish a bacteriological station at the water-works, and to abandon the examination of the water in the city as superfluous.

The results of the experience of Berlin illustrate two important facts: That filtration is a practicable and thoroughly efficient means of purification of public water supplies; in fact, the only means of removing, on a large scale, infectious matter from water; and that bacteriological examination is the only means of testing the efficiency of the process. These facts are of great moment to every community depending on public works for its water supply, and well worth pondering and turning to useful account. It seems incredible that communities of wealth, intelligence, and progressive spirit are content to use water just as it may happen to come from the river or collection basins, often repulsive to sight and taste from scourings of the watershed by heavy rains or from excessive proportion of organic matter in times of drought, and rendered unwholesome by contamination by the sewage and excreta of the population resident on its banks, without any attempt at artificial purification. The health of the people is paramount to all other considerations, and in conducing to this object no measure is comparable to the provision of a water supply of the highest attainable purity.

HYDROGEN PEROXIDE IN DIPHTHERIA.

THIS subject has in part engaged the attention of two successive meetings of the Kings County Medical Association, Brooklyn. The remedy is undoubtedly one of great potency, but it does not rapidly advance in professional esteem, for the reason that its preparation and administration are not unattended by difficulty; or, more properly expressed, they require some attention and care. The undilute peroxide being very unstable, it is only found in the drug-stores in solution in water containing a small proportion of hydrochloric acid. A fifteen-volume solution is prepared, which contains fifteen fluidounces to the pint, the cost of which is nine dollars per dozen pint bottles. Below 59° F. this solution will maintain its oxygen fairly well, but above that point its efficiency decreases. It should, therefore, be kept in a cool place; the heat of the hand is sufficient to liberate the gas, and hence the bottle should be handled by the neck and carried by a string attached to its neck. The fifteen-volume solution is not to be used in its full strength, but should be diluted for all spraying or injection purposes; three ounces of the above solution, if added to a pint of water, will be strong enough for adults, and two ounces to the pint for children. Spraying apparatus should be of hard rubber, and not of metal, since the oxygen readily attacks most metals, and the resulting solution might be injurious. The two-volume solution, just referred to, may be used every three hours, or oftener, in the case of children, the nose, throat, and mouth being flooded by means of a spray-producer. The excess of the solution that may find its way into the stomach or larynx is not harmful, but rather beneficial. Patients old enough to gargle should use the three-volume solution in that manner.

The dosage above given is that recommended in a paper by DR. E. R. SQUIBB, before the Association above mentioned, published in *Gaillard's Medical Journal* for March. Since the reading of that paper, some considerable trial of the drug has been made, with generally good report. From the testimony of some of these experimenters, the cleansing and disinfecting powers of the peroxide surpass those of any application heretofore tried by them. Its administration is quite unobjectionable, even to the young, the solution being only slightly acidulous in taste, odorless, and colorless. There is a kind of after-taste or impression that is not lasting nor essentially disagreeable—less so than in case of most of the medicaments used in this affection.

To sum up the case, it would appear that in this relatively tasteless and innocuous solution we have about the best of the antiseptics and cleansers that

are known to chemistry, and one that is far less prone to toxic risks than some of the solutions—as, for example, corrosive sublimate—that have been widely used of late. There are other uses of this peroxide, where the throat and mouth require strict cleansing, as in scarlet fever; also in uterine cancer, and in indolent sores where deodorant action is indicated. In the last class of cases a one-volume solution will commonly be sufficiently strong. In cancer it can be used indefinitely strong, or until the disinfectant effect is attained.

A CONVENIENT MODIFICATION OF THE COLD-WATER TREATMENT OF FEVER.

There can be no doubt that the safest, if not the most effective, of all antipyretic agents is sponging the surface of the body with water, either tepid, cool, or cold. A still more effective and quite as convenient method of applying water to the skin is in the form of spray as described in a recent number of the *Prager medicinische Wochenschrift*. Preyer published an account of this method in 1884, although it had been employed somewhat earlier by Flashar. In 1886 Hiller applied it to the treatment of sunstroke. Placzek modified the procedure by spraying first with cold water (53°–60° F.) and directly after with warm (95° F.). In this way he produced a fall of two degrees in the temperature of a febrile animal. The warm spray produces a rapid dilatation of the skin capillaries and consequent dissipation of heat.

Such measures as these, which are in close imitation of the natural processes of heat regulation, deserve the most careful study. Their soothing effect upon the nervous system is in marked contrast to the prostration so often induced by the antipyretic drugs that have been lately introduced in such numbers.

The San Francisco Polyclinic was opened on March 1st for post-graduate instruction. It is proposed to build a hospital in connection with the institution.

The Trustees of the Jefferson Medical College, last Monday, elected Dr. William W. Keen to the Chair of Principles of Surgery and of Clinical Surgery, rendered vacant by the death of Dr. Samuel W. Gross. Dr. Keen has been a most able teacher of anatomy and surgery for more than twenty years, and a surgeon of large operative experience. His reputation for sound judgment, scholarly attainments, and successful teaching give assurance that he will well maintain the fame which the Chair of Surgery at Jefferson has for so long a period enjoyed.

The annual meeting of the Association of Medical Superintendents of American Institutions for the Insane will be held at Newport, R. I., June 18th next.

The fourth session of the French Congress of Surgery will be held at Paris, on October 17 and 18, 1889, Baron Larrey presiding. The following questions will be the order of the day: 1. Immediate and after results of operations for local tuberculosis. 2. Surgical treatment of peritonitis. 3. Treatment of aneurism of the extremities.

What is more interesting than the analysis of the intellectual workings of a great mind, when made by himself? Dr. Holmes has just done this for us, on a limited scale, in a letter published in the *Canadian Medical and Surgical Journal*, April, in reference to a commendatory comment written by Dr. William Osler concerning the part taken, long years ago, by Dr. Holmes in teaching correct views on the subject of puerperal fever. The genial Autocrat writes as follows: "There was a time certainly in which I would have said that the best page of my record was that on which I fought my battle for the poor poisoned women. I am reminded of that essay from time to time, but it was published in a periodical which died one year after life, and it therefore escaped the wide notice it would have found if it had been printed in *The American Journal of the Medical Sciences*. A lecturer of one of the great London hospitals referred to it the other day, and coupled with it some fine phrases about myself which made me blush either with modesty or vanity, I forget which. I think I will not answer the question you put me. I think often of the "Chambered Nautilus," which was a favorite poem of mine, if I wrote it myself. The essay only comes up at long intervals; the poem repeats itself in my memory, and is very often spoken of by my correspondents in terms of more than ordinary praise. I had a savage pleasure, I confess, in handling those two professors, learned men both of them—skilled experts, but babes as it seemed to me in their capacity of reasoning and of arguing. But in writing the poem I was filled with a better feeling, a higher state of mental exaltation, and the most crystal clairvoyance, as it seemed to me, that had ever been granted to me. I mean

that lucid vision of one's thought, and all forms of expression which will be at once precise and musical—which is the poet's gift, however large or small in amount or value. There is a more selfish pleasure to be had out of the poem, but perhaps a nobler satisfaction flows from the life-saving labor."

A SPECIAL meeting of the *Sei-I-Kwai* of Tokio was called last month, in memory of the death of DR. DUANE B. SIMMONS, which took place in Tokio on February 19th. Dr. Simmons was a native of Milan, Dutchess Co., N. Y., and was one of the oldest foreign residents in Japan, having been there since 1859. He has done much toward the advancement of medical science in Japan, and the present excellent condition of the Medical School of the Tokio University is largely due to his untiring zeal. The meeting of the *Sei-I-Kwai* was not attended by members of the medical profession alone, but Japanese journalists, politicians, and statesmen joined with the profession in paying tribute to his memory.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting May 6, 1889.

THOMAS G. MORTON, M.D., IN THE CHAIR.

DR. H. PACKARD read a paper on

SEPARATION (COMPOUND) OF LOWER EPIPHYSIS OF FEMUR; AMPUTATION.

Owen McK., æt. nine years, was admitted to St. Joseph's Hospital April 16, 1889, having had his right lower extremity caught in a wheel of a wagon behind which he was hanging.

A very large ragged wound existed at the back of the thigh, very low down, involving the popliteal space. Through this wound the end of the shaft of the femur protruded, stripped cleanly of periosteum, and showing the nodulated surface which had fitted to the epiphysis. The condyles were still in contact with the articular surface of the tibia, but tilted so that, as the boy lay on his back, their cartilaginous covering looked upward. They were also pressed toward the posterior part of the limb, so that the tibia seemed as if partially luxated forward.

Very little blood had been lost, and the boy's general condition was excellent. He was etherized, and a careful examination made. The soft parts were found to be very extensively torn, but the vessels were apparently whole. The foot and leg, however, were markedly colder than on the opposite side. On extension, the end of the shaft could be reduced, but the tilting of the epiphyseal portion could not be overcome so as to restore the proper relation of the two. Resection was considered, but rejected for two reasons: in the first place the position of the epiphysis, and in the second place the great probability that the vessels had suffered and that secondary hemorrhage would ensue, or gangrene of the limb below if they were plugged. The limb was, therefore, amputated, with a long anterior flap, the bone being sawed through about an inch and a half above the end of the shaft. The bruised and torn muscular structures were carefully removed. A large periosteal covering was laid over the sawed end of the bone and sutured with fine catgut. Sutures were also applied to keep the deeper tissues in contact, and the lips of the wound were approximated with silkworm-gut, shotted.

On examination of the amputated limb it was found that the tilting of the epiphysis was due to the upward pull of the quadriceps femoris upon the patella, and to the attachment of the heads of the gastrocnemius to the posterior portion of the epiphyseal fragment. With the exception of a very small chip torn from the anterior edge of the end of the diaphysis the lower fragment seemed to consist of the epiphysis alone, separated exactly at the line of union between the two ossifying portions.

This seems to me to be one of the points of interest in this case; another being the tilting of the epiphyseal portion and its cause, which, so far as I know, has not been noted in any other instance hitherto reported. Another point of some importance is the condition of the vessels, which, it seemed at first sight, must surely have been torn across. That they were not so torn—and they are said to have escaped in several of the other cases on record—seems to me to be attributable in part, at least, to the twisting of the limb at the time of the accident, the shaft of the bone not following the rapid movement of the lower portion, so that the vessels and nerve were caused to slide over it in an inward direction, instead of being stretched over it as it was forced backward.

This particular accident, as is well known, has been noted as the cause of separation of the lower epiphysis of the femur in more than half of the recorded cases. I believe the statement of Reverdin holds good, that in only two instances has the attempt to save the limb been attended with success.

The boy has done remarkably well; a small slough separated from the edge of the anterior flap, but the aseptic condition of the wound was not interfered with by this circumstance, healing being now almost complete on the seventeenth day.

DR. JOHN H. BRINTON desired to exhibit another specimen of the same injury with a brief report of the case. The specimen was presented seven years ago to the museum of the Jefferson Medical College, by Dr. Willis T. Davison, of Pennsylvania. The patient was a boy twelve years of age, who, while riding on the back of a buggy, had his left foot caught between the spokes of the wheel and carried forward, producing a separation of the epiphysis with a slight nipping off of one portion of the edge of the diaphysis, as shown in this bony preparation.

A few hours after the accident the patient was seen by Dr. James Davison, of Canton, Pa., who found an oblique wound, four or five inches long, extending across the upper portion of the popliteal space. The skin, superficial fascia, and muscles were severely lacerated, and there was copious venous hemorrhage and extensive extravasation around the joint and upper part of the leg;

no pulse could be felt in the posterior tibial artery. The boy was able to turn over and imperfectly raise the knee from the bed. An unsuccessful attempt was made to save the limb, but amputation was necessary on the fourth day, and the patient made a good recovery.

Careful dissection of the amputated limb showed that the epiphysis had been torn from the diaphysis, and the artery injured in such a manner that a probe could with difficulty be passed through it. It was also found that there was a rupture at the posterior part of the synovial membrane opening the knee-joint.

The account given by Dr. Packard of his case would apply almost without alteration to this one. It was thought by the reporter of this case that the leverage was exerted by the bone being caught between the spokes and the cross-iron of the buggy. At the time this case was reported it was believed to have been the seventh instance of this injury.

DR. PACKARD stated that the specimen did not represent the full amount of bone exposed and deprived of periosteum. The injury to the soft parts was very great. The bruised and lacerated tissues were cut away with much care. His first idea was to resect and apply the end of the diaphysis to the surface of the epiphysis. He found great difficulty, however, in replacing the epiphysis, and could not at the time tell what the reason was. It seemed to him scarcely justifiable to make incisions to free it. He thought that the attempt to save the limb would subject the patient to greater danger than amputation. There was also great probability of injury of the vessels, with the danger of secondary hemorrhage or gangrene of the whole limb, and possibly blood poisoning. Under these circumstances it seemed to him that the proper course was amputation.

According to Reverdin, the attempt to save the limb has been successful in only two out of about thirty cases of compound separation of the lower epiphysis of the femur.

DR. CHARLES B. NANCREDE disclaimed any criticism of the treatment employed in this case, but wished simply to report an instance of involuntary conservative surgery, showing what can sometimes be effected in the injuries of children. A child three and one-half years of age was run over by a loaded coal-cart, the wheel traversing the groin just below the line of Poupart's ligament. For about two-thirds of the diameter everything down to the bone was crushed. The bone was broken and the skin also stripped from the muscles on the outer side of the limb. Everything was crushed except a bridge of skin and muscle on the outer side. The femoral vessels which traversed this gap, filled with coal-dust, was all that was left on the inner side except a portion of the adductor longus. He, of course, suggested the propriety of amputation, but was allowed to do nothing. He did his best to drain and antisepticize the wound. On the fifth day, just as the dressing was removed, the femoral artery gave way. He caught it and tied it above and below the profunda. Inside of half an hour the collateral circulation was established. This was over thirty days ago. The bone is covered with granulations; secondary abscesses have formed and been drained. But while the child is steadily losing ground, so far it has survived an apparently hopeless injury *without* amputation, and may yet recover a useful limb.

DR. MORTON read a paper on

THE TREATMENT OF CLUB-FOOT.

(See page 542.)

DR. J. H. PACKARD said that it is highly important that after the operation the development of the muscles shall be attended to. This idea is, of course, not a new one, but it deserves fuller appreciation than it has generally received. A year ago he operated on a case, removing the astragalus for caries. Six months later the child was brought to him on account of a tendency to draw the knee back. All the muscles were wasted and the limb was decidedly smaller than the other. The child walked badly. He directed the mother to make systematic massage of the muscles; the result has been a marked improvement in the gait. He supposed that there is nothing better established than that there is a nervous element at the root of all these troubles. His own observation has been that in cases of one-sided club-foot there is a decided difference in nutrition in favor of the sound limb as against the distorted limb. He doubted whether sufficient attention is drawn to this matter of the development of the muscles.

EIGHTH GERMAN CONGRESS OF INTERNAL MEDICINE.

Held at Wiesbaden April 15th to 18th, 1889.

(Continued from page 531.)

(Specially reported for THE MEDICAL NEWS.)

DR. DETTWEILER, of Falkenstein, read a paper on the

INFLUENCE OF SPUTA AS A MEANS OF TRANSMITTING TUBERCULOSIS.

In an article written by Dr. Cornet in the *Revue d'Hygiène* last year, the author draws particular attention to the danger of contagion by the sputum, by handkerchief, by the floor, by the spittoon. The expired air is not contagious, and the tubercular patient becomes dangerous only by his sputa, the only source of contamination being the specific bacillus.

If we prevent the patient from spitting anywhere he likes, if we thoroughly disinfect all the clothes which may have had sputa in contact with them, we have done all in our power to prevent the patient from being a source of contagion to the persons who surround him.

In the hospital spittoons have been introduced which, unluckily, are not hermetically closed. In private practice, however, the state is even worse, for the patient will expectorate in his handkerchief, and, if no one is present, he will not hesitate to do it on the floor. In this manner he becomes a source of infection, a great danger to those in immediate contact with him. At church, in stores, saloons, theatres, etc., these patients are a danger for those who come after them. This would explain more readily the heredity of tuberculosis, for, whatever may be the favorable state of an organism for receiving the disease, one can only become tuberculous by the medium of Koch's bacillus.

It is then necessary to interfere, and prevent all these phthisical patients from infecting, by means of their sputa, their handkerchiefs or the floor of their room; and he thought it necessary that any family that has a phthisical patient must be informed of the danger to

which they expose themselves if they are not strictly careful. We, as physicians, must combat as powerfully as we can the habit of spitting in handkerchiefs, the source of most infections.

PROF. EBSTEIN, of Göttingen, then read a paper

ON THE PATHOGENY OF GOUT.

He said two forms of gout are usually described, an articular form and a renal one. Articular gout is a chronic form; tophi will appear during as well as after an attack of the disease.

The idea of Garrod, that these formations of crystallized uric acid occur on account of the gouty inflammation, is not admissible; our anatomical and experimental researches demonstrate and prove it certainly. Uric acid is a chemical poison which determines or produces a necrosis much more easily than an inflammation.

It is because these tissues are in a state of necrosis that we have these formations of crystallized uric acid. This conception of the previous necrosis of the tissues, under the influence of the uric acid poison, explains why we meet with severe visceral or other gouty affections without any traces of tophus.

The toxicity of uric acid can also only show itself in a transitory form. Its presence irritates the tissues, but when it has disappeared the symptoms all disappear, and it would be very difficult to find any traces of its passage; this fact applies to nearly all chemical poisons.

The most interesting gouty manifestations are certainly those which concern the viscera, and especially those of the digestive apparatus and its allied parts. The participation of these viscera has been the point of departure of a great many theories on the pathogeny of the gouty affection. However, whatever may be the theory adopted, one cannot conceive that an excessive uric acid formation could alone start a gouty attack. He could not accept the opinion of Garrod, who explains gout as being an excessive production of uric acid and temporary incapacity on the part of the kidneys to eliminate this acid.

There are several causes which can produce a stasis of uric acid; amongst them all the functional diseases of the kidneys, or any retention of used-up material due to a morbid modification of the nutritive changes; in this last example it is the kidney which is primarily involved by gout, and we have then to deal with the primitive renal gout, which is a very fatal form of the affection.

The crystalline deposits of uric acid explain sufficiently the anatomical lesions of the primary gout of the articulations. The marrow of bones and the muscles created, so to say, almost exclusively the uric acid, which, starting from these points of origin, passed into the lymphatic channels, to infect finally the whole mass of the blood. The uric acid which is carried about by the blood undergoes no further modification, and the kidney eliminates it without its having lost its distinctive characters. The uric acid impregnation of the blood is a very easy matter. The acid travels very slowly along the lymphatic channels, and the gouty deposits are nothing more than so many points of arrest for the acid. The fact that, in gout, the heart and bloodvessels are often involved, proves the necessity of a temporary stasis for the realization of a gouty attack.

It is in those conditions, which will allow the local stasis of uric acid, that he finds the connecting link which unites gout to rheumatism on one side, and to syphilis on the other.

DR. PFEIFFER, of Wiesbaden, then spoke of the

TREATMENT OF GOUT.

Gout does not always manifest itself by involving the kidneys or articulations; the skin is often involved and in an isolated manner; gouty affections of the skin are sometimes so marked that the swelling and redness may be taken for an abscess, but we all know that a gouty abscess has not yet been discovered. On the other hand, we have a gouty patient who complains of pain in the knee; one believes in a gouty attack, but when we look more closely, we are surprised to find that the communicated articular movements are not at all painful. This is because the attack does not involve the articulation itself, but is located exclusively on the external integument. Often the first tophi are met with on the skin, and the skin of the fingers only sometimes; the patient does not notice them. Gout before becoming articular is nearly always dermic. In a patient he has discovered an enormous tophus on a level with the elbow, without its presence having produced the slightest pain. He did not believe in the necrotic process of gout; a deposit of urates can determine a violent inflammation, but this never extends to a real necrosis. The necrosis of a tissue during an attack of gout is nearly always due to a traumatic lesion; in a gouty patient, who was continuously fencing, the necrobiosis of tissue due to gout occurred on his right hand. The gouty individual eliminates much less uric acid than the normal person; in the first the uric acid, which is present in great quantities in the serum of the blood, is no more eliminated, because it has lost its exosmotic power; the organism produces more uric acid than it eliminates; and when the attack of gout supervenes the uric acid has almost completely disappeared from the urine, and it is only at the period of acme of the attack that uric acid is eliminated in excessive quantity.

When the tophus is once formed, it will not increase in size. The contrary was believed on account of the inflammatory states of the tissues which surround the urate deposits.

The hypodermatic injections of uric acid are extremely painful, and the result is exactly the same whether we use for these injections, instead of uric acid, the acid phosphate of soda; this is what occurs in an individual in normal health. If these same injections are made in gouty patients, no pain will be experienced; this is an excellent process for differential diagnosis. This result is easily explained by the following experiment: If before making the subcutaneous injections of acid phosphate of sodium, we render the organism alkaline we shall experience a great deal of pain, which one would not feel in the normal state. By rendering, on the other hand, the humors of the organism acid, by taking internally a small quantity of hydrochloric acid, the injections of acid phosphate are absolutely innocuous. The alkaline state of the liquids of the whole organism is, therefore, the cause of the pain described above.

The treatment requires the compliance with an important indication, namely, to keep the uric acid in a powerful state of diffusion. For this purpose a careful diet is necessary. He thought that we make a mistake in suppressing too rapidly the dark meats; for the only

serious danger from gout is the gouty cachexia, which comes early if the patient is not sustained; we must, on the contrary, give as much albumin as we can, for the suppression of meat is against the chemical indication. He thought meat is much to be feared, his experiments having shown that the uric acid is derived almost exclusively from the hydrocarbons. He does not allow milk under any condition. As a general rule, hydrocarbons must be given to gouty patients in the smallest proportion possible.

Alcohol and wine, diminishing the diffusibility of uric acid, must be strongly forbidden. When a gouty attack comes on, the patient must not be allowed to remain too long in bed, for in doing so he postpones and prolongs the disappearance of the attack; he must take out-door exercise.

As to the medical treatment, he knew of but one, the alkalinization of the blood to the extremest degree. To bring on this condition we must act with a great deal of care and begin the treatment by very small quantities of alkalies. He has seen patients who, under the influence of a large quantity of alkaline water taken at the beginning of the treatment, have had the severest attack of gout possible; we must, for this reason, begin with very small doses and progressively increase our medication.

Alkaline baths are also to be recommended. Against the articular pains he gives 30 or 45 grammes a day of salicylic acid; this will promptly relieve the pain. Extremely diluted hydrochloric acid will do better than the salicylic acid.

M. FÜRBRINGER, of Berlin, then read a paper on

VIRILE STERILITY.

A great distinction must be made between impotentia generandi and impotentia coeundi: the first consists in the sterility due to aspermia—that is, the absence of spermatozoa in the seminal fluid, when there are no other essential alterations in the accomplishment of the sexual connection.

In this paper he considered only the impotentia coeundi, which Rockwell and Hammond have studied under the name of sexual neurasthenia, and he did not consider the different organic causes (such as those due to syphilis, gonorrhœa, traumatism, etc., which bring on impotentia coeundi on account of the pain or incurvation or other alteration having an anatomical basis).

In nervous impotency, the insufficient erection is the principal cause of impossibility of coitus. Sexual impotency of purely physical origin, without any appreciable neurasthentic phenomenon, is much the less frequent; impotentia coeundi coexists nearly always with indications of irritative feebleness, and can, like spermatorrhœa, which usually accompanies it, constitute in most cases the only symptom of a neurasthenia. While he has collected one hundred cases of impotentia generandi he has two hundred cases of impotentia coeundi, of purely nervous origin, which nearly all have occurred in his private practice. Out of 15,000 patients whom he has treated at the hospital he has met only two cases of this functional trouble. He does not think it is more exceptional in the working classes, and he attributes our lack of knowledge in those cases to the carelessness with which the sexual act is accomplished.

The extreme ages at which he has met this affection are eighteen and fifty-two years; 50 per cent. of his patients were in their fortieth year. His statistics indicate a greater frequency in business men, officers, and, above all, physicians; it is not rare in theologians, and, lastly, professors are at the bottom of his list. As to the early histories of these cases, he has found that 28 per cent. were due to onanism; 38 per cent. to gonorrhœa; onanism and gonorrhœa combined, 13 per cent.; excess of natural coitus, 10 per cent.; hereditary irritative weakness, 11 per cent. It is to be remarked that spermatorrhœa and the voluntary suspension from coitus do not give origin to a special form of the affection, and that it is the sexual excesses and not their accomplishment against the laws of nature which have an influence in this respect. In all these patients the general state varies with the more or less prominence of the phases of this nervous impotency, the associated symptoms of which consist of headaches, disturbances of vision and speech, in phenomena of nervous dyspepsia, in more or less marked cardiac disorders—in a word, to spinal irritation.

The analysis of the four distinct phenomena which occur in the sexual act—erectio, libido sexualis, ejaculatio, orgasmus—permit us to distinguish four principal forms of impotentia coeundi.

In the first, which is the most frequent, there exists, independently from insufficiency of erection, a more or less pronounced weakness of the desire, of the ejaculation, of the orgasmus. In this form, which affects at the same time the four parts of the sexual act, we must take into consideration the female coldness which is quite common in Germany; in certain less frequent cases, it is less an impotentia virilis than a impudentia muliebris.

The second form, characterized by nearly the same symptoms, differing from the first only by the exaggeration of the sexual desire, is accompanied by frontal headache, and requires a bad prognosis.

The third form, characterized by a precocity of the ejaculation, constitutes an insensible transition between impotentia coeundi and diurnal pollutions.

In the last form the desire and ejaculation exist, but the erection is abnormal on account of mixed cerebral activity or professional preoccupations.

To establish the diagnosis of impotentia coeundi, we must carefully examine the urine for sugar or albumin, and look if we can find any signs of locomotor ataxia or cerebral tumor, such as syphilitic gummata.

As to the prognosis, it depends on the degree of neurasthenia. His statistics have given him one-third of cures and one-third of ameliorations. We must hold ourselves on the reserve for the local treatment, which is useless so long as there is no inflammation of the urethra, and which exerts even, in a moral point of view, a bad influence, in cases where the impotency is of a purely nervous character.

To hygienic conditions, above all, must therapeutics owe its beneficial influence; we must, according to the case, oblige our patients to take physical and intellectual rest; forbid any sexual intercourse; recommend travelling; and in many cases, a stay at a special place for the treatment of the neurasthenia.

Hydrotherapy and massage can in those cases render good service; but the results obtained by these methods are far from being satisfactory. As to the question of marriage, this should be left to the appreciation of the physician for each special case.

DR. KLEMPERER, of Berlin, read a paper on

DILATATION OF THE STOMACH AND ITS TREATMENT.

In Dr. Leyden's clinic he had observed seventeen cases of dilatation of the stomach with narrowing of the pyloric orifice. In eight of these the quantity of hydrochloric acid in the gastric juice was below normal; in seven it was greater than normal; and in two it was equal to normal. He had studied with great care the relations existing between dilatation of the stomach and gastric hyperacidity, and he had observed twenty-one cases of hyperhydrochloridity, which he divided into two sections:

1. In twelve cases of hyperacidity with preservation of the motor functions of the stomach the patient presented all the symptoms encountered in nervous dyspepsia; in these cases cure has always been very difficult. But in these patients, notwithstanding the hyperacidity, the stomach did not undergo dilatation, and he thought that these cases ought to be classified as secretory neuroses.

2. In this section he placed cases of hyperacidity with weakening of the motor power. He placed in this group those cases in which the hyperacidity and motor weakness were due to an irritation resulting from a too copious feeding. In this group he also placed four cases characterized by a hypersecretion, and a case of hyperacidity accompanied by a well-marked diminution of the saccharifying power of the saliva upon starch. In several cases the motor weakness of the stomach was the first to appear, so that the hyperacidity can be due to the great length of time during which food is kept in the stomach. In this class belongs the dyspepsia of phthisis.

As a cause for the weakening of the gastric motor power a torpid state of the vagus nerve has been suspected: this theory appeared to him much more acceptable, since he has had the opportunity to observe gastric dilatation occurring simultaneously with palpitation of the heart; when this weakening of the motor power is prolonged the state of hyperacidity may be replaced by a lack of acidity.

He thought that a weakness of the gastric motor power is very often the sole primary cause of gastric dilatation. This state may be primary or secondary, and results from the irritation produced by undigestible food; but the hyperacidity of the gastric juice cannot be considered as a cause of ectasy. It is not always easy to treat such cases; but it would be contrary to accepted opinion to assert that, when a dilatation is once produced, it will not disappear again. He had had the opportunity to observe an enormous dilatation of the stomach, which came on in four weeks' time, as a result of poisoning by an acid. After a resection of the pyloric end of the stomach, the stomach returned to its primitive form, as he had been able to verify by an autopsy of the patient, who, being phthisical, died a few months later from tuberculous disease. In cases, however, in which the dilatation comes on gradually and takes a chronic form, the return to the normal condition is no longer possible, but a well-understood treatment can restore the motor power.

His treatment of these cases is as follows: Washing out the stomach in the evening with a small quantity of water, using an aspirating apparatus, and carefully regulating the diet. Many authors recommend a meat diet, thinking that the stomach is able to digest meat rapidly, but as a result of his researches he has found that in dilated stomachs absorption is very much restricted. It is necessary, however, that the intestine should receive as much food as is requisite for the preservation of the tissues, and for this purpose, 18 ounces of fat and 3¼ ounces of hydrocarbon are to be recommended for one day. The fatty matter must be given in the form of cream and the hydrocarbon as glucose. Bread can be given as part of the alimentation of such patients, and a certain quantity of alcohol would also be of benefit. In addition to the above, electrical treatment and massage are recommended.

PROF. EBSTEIN, of Göttingen, read a paper on

EXPERIMENTAL FORMATION OF RENAL CALCULI.

He had made with M. Nicolaier experiments on dogs and rabbits, and they were able to produce in these animals, by introducing oxamide in their food, renal calculi, the largest of which were localized in the pelvis of the kidney, while the gravel and small grains of sand could be found in any part of the urinary apparatus. The ingested oxamide was white, while the renal concretions were of a grayish-yellow; the largest of them presented on their surface asperities and elevations. The calculi were very hard, and after attrition they observed on the worn surface concentric rings or portions of rings, between which they could distinguish concentric layers having a radiated striation. These concretions are constituted by oxamide and by an organic stratum, giving all the reactions of albuminoid substances. Treating these calculi by means of hot water at 176° to 194° F., the oxamide is dissolved and brings into view the organic stratum, sections of which offer a similar disposition to the worn surfaces, except that the suppression of these radiations reveals the relation which exists between these stellate fibres and the existence of oxamide.

DR. HANAU, of Zurich, read a paper on

THE ARTIFICIAL INOCULATION OF CANCER.

The experiments which have been undertaken up to the present in regard to the transplantation of cancer, have given in some cases absolutely negative results, in others inflammatory alterations of a simple form; sometimes a true clinical tumor has been observed, the carcinomatous nature of which, however, is questionable. Two experiments only—one of Nowinsky, the other of Wehr—can be considered as having been successful, and yet no histological examination has been made.

In November, 1888, Hanau transplanted into the tunica vaginalis of the testicle of two rats, materials derived from non-ulcerated glands, but which were already involved by metastasis from a cancroid of the vulva which had spontaneously appeared in a female. One of those rats died seven weeks later; the post-mortem showed the presence of nodular cancer occupying the whole peritoneum; for we know that in the rat the inguinal canal is not obliterated.

In a second rat, sacrificed at the end of the eighth week, the tail of the epididymis was the seat of a cancerous nodule of about the size of a pea, and the gubernaculum testis presented a nodule about one-thirtieth of an inch in diameter.

On histological examination, the identity between the structure of the tumors found in those animals and that of the cancerous material used was most striking. Both

cases were of squamous epithelioma. The absence of any primary cutaneous cancer in those animals previous to his experiment, and the localization of the cancroid on the surface of the peritoneum or tunica vaginalis, allow him to establish a certain relation between the fact of transplantation and the production of the cancer. The failure of former experiments must be attributed to bad manipulation.

From the second dead rat, cancerous material was obtained and transplanted to a third animal, in which the existence of a tumor can already be distinguished.

EXTIRPATION OF THE LARYNX FOR CANCER.

DR. ROSER, of Hanau, presented a woman, forty-five years of age, upon whom he had made a total extirpation of the larynx. The patient consulted him, for the first time, four years ago, when she presented a squamous epithelioma of the larynx.

Supra-sternal tracheotomy was first performed, which enabled the patient to go about for these four years, but six weeks ago, the patient having become suddenly worse, he decided to extirpate the vocal organ. The operation was a success, and the patient was presented to the members of the Congress. She is now being nourished with the aid of an œsophageal tube.

PROF. VON ZIEMSSEN then read a paper

ON CARDIAC CONTRACTIONS.

He has studied through the medium of tracings the successive phases of a cardiac cycle. Between the moment of complete rest in the state of diastole and the first cardiac sound, contraction is represented by a rapidly rising curve, soon followed by another rising curve nearly straight, but a little longer and approximating more to the horizontal line. Between the first and second sounds the cardiac tracing presents an almost vertical ascending line, terminated by a rounded hook, the summit of which corresponds to the phase of most active contraction; then the curve comes down again as suddenly to a level a little higher than the one corresponding to the beginning of the second phase; the curve then rises again at two different moments, but very feebly; and of these two summits, much lower than the first and corresponding to a normal dicrotism, the last one is the least elevated and corresponds to the second sound. Next the curve comes down somewhat less suddenly to the inferior level of the tracing, the total of which represents the whole cardiac cycle.

The experiments made with alcohol on the one side and digitalis on the other, show that, in the second case, the time elapsing between the phases of complete diastole and the first valvular sound is about the only one at all influenced; it is shortened in the first case, elongated in the second. These phases are in the proportion of 0.18 to 0.46, the normal phase being 0.25. The other parts of these tracings do not vary from the normal type.

DR. KREHL, of LEIPZIG, then spoke of the

VARIATIONS OF PRESSURE IN THE CARDIAC AND ARTERIAL CAVITIES.

At the Physiological Institute of Leipzig he made, with Prof. Frey, experiments on the dog by means of sounds introduced into the left ventricle and aorta, and of a rubber manometer which furnished a graphic variation of the blood-pressure in the left heart and aorta. In the heart the pressure rises rapidly, to come down to zero after having reached its maximum point. To the period of negative pressure succeeds immediately, after each cardiac beat, a positive pressure or a moment of rest. The absolute increase in the pressure rises in direct proportion to the degree of fulness of the heart, as well as in proportion to the amount of resistance. The closure of the valves is not marked very plainly on the tracing of the ventricular pressure. The elevation of pressure is more retarded at the base of the aorta than in the ventricle; the pressure rises as long as the outflow of the orifices is greater than the quantity which passes through the aortic opening. The aortic valves close as soon as the aortic pressure is superior to the intra-ventricular pressure; then we note a second maximum value of pressure, which constitutes the dicrotic character of the blood column, which is nearly always constant.

The dicrotic undulation is produced before the closure of the aortic valves; so that the production of this dicrotic undulation cannot be in direct relation to the closure of the aortic valves, and cannot be attributed to it. In comparing the variation of pressure in two different parts of the aorta, we find that this dicrotic undulation is always nearer to the heart. The dicrotic undulation being, then, an undulation, which from the periphery goes toward the centre, we understand that the greater the pressure the more will this tracing approximate to the principal summit of the tracing, for the rapidity of propagation of the undulation in the vascular channels rises in proportion to the tension of the walls. By means of stimulating the pneumogastric, one can produce aortic pulsations without dicrotism; this is what we observe when the reflected undulation comes back to the base of the heart, when the heart has stopped from emptying itself. If the pressure is not of an abnormal height, this phenomenon can still take place when, under the influence of the irritation of the pneumogastric, the graphic segment corresponding to the positive pressure of the ventricle finds itself prolonged.

DR. FR. MULLER, of Berlin, then read a communication

ON NUTRITIVE CHANGES IN CANCEROUS PATIENTS.

A careful examination of numerous experiments he had made to study the state of nutrition in persons suffering from cancer, has shown such a diminution in the excretion of urea, that one might have thought of the existence of renal complications. Toward the end of the disease, the comatose stage, in which many patients die, seems to be due to a real intoxication resulting from the accumulation of the organic waste material, which shows itself in the urine by the almost entire absence of urea. This fact might help us to explain the comatose state which often accompanies the death of the cancerous patient; this coma is a uræmic coma, and yet is remarkable on account of the absence of all renal lesions.

PROF. LEYDEN, of Berlin, stated that the researches relating to the nutrition of patients suffering from carcinoma or malignant tumors are of considerable practical importance. The works of Klemperer, Müller, and Freund allow us to find out the ways by which cachexia brings on death, and to discover at the same time the way in which rational therapeutics will be able to neutralize these destructive processes. From their researches

we shall obtain principles applicable to an internal medication appropriate to cancerous patients; without going so far as to pretend to cure cancer, we can declare, according to these researches, that the attempts of medicine to prolong the life of our patient will no more be restricted to the chances of purely empirical means, and that we possess to-day a new direction toward which we are to conduct therapeutical experiments. The use of the tube in many cancerous patients has enabled us to prolong the life and obtain a rapid increase in the bodily weight, favoring the organic nutrition. So long as nutrition will not be interfered with, either by the fact of a pyloric or intestinal stenosis, or so long as the intensity of the suffering does not go beyond human endurance, we shall be able to rely upon the favorable results of a nutritive course based upon pathologico-physiological researches, to postpone the period of cachectization and to prolong life.

DR. FREUND, of Vienna, had also studied from a chemical point of view the relations which exist between the different groups of albuminoid, mucous, fatty, hydrocarbonaceous, aqueous, and saline substances, in normal tissues as well as in those of malignant character. Out of sixty cases which he had studied in a period of three years, he had always found that those tissues of neoformation contain 50 per cent. less albumin than the normal tissues, and that carcinoma presented, with a normal proportion of fat, twenty or thirty times more hydrocarbons, while sarcoma presented about a normal proportion of fat and hydrocarbons, but an average of about 5 per cent. of the weight of the dry residue was peptone. On the other hand, the blood of cancerous patients, even at the beginning of the disease and outside of all cachexia, presented a proportion of sugar and hydrocarbons about double or three times the normal amount, while the blood of sarcoma did not contain any hydrocarbons in excess, but furnished an exaggerated proportion of peptone (0.2 per cent.). In such proportions both these substances must be considered as abnormal in the blood, their presence being attributable to a diminution of the oxidizing power of the tissues in regard to a special group of substances. It is interesting to note that the substances which are found in exaggerated proportion in the blood are precisely those which constitute an important element of each of these products of neoformation.

DR. FINKLER, of Bonn, the read a paper on

PNEUMONIA WITH STREPTOCOCCI.

He had observed, some time ago, a short epidemic of pneumonia, which suddenly appeared in the suburbs of Bonn; it was a pneumonia of lobular form, becoming lobar by propagation, and presenting the form known as erysipelatous or migratory pneumonia. The bacteriological researches, before and after death, have always invariably shown the presence of the same microörganism, the streptococcus pyogenes. The lung, however, did not suppurate, excepting a few small miliary abscesses, occupying in one case only the periphery of the involved lobule. These pneumonias occurring spontaneously in persons having not had before an infectious disease, having long ago passed the age of eruptive fevers, or, at least, having not had any before the pneumonia, proves that the streptococcus, the function of which is so important in the pathogeny of secondary infections, can primarily, and by its sole existence, determine pulmonary lesions the clinical and anatomo-pathological aspect of which leave no doubt as to its nature. This was the type of lobular, pseudo-lobar, or migratory pneumonia which he had observed.

DR. VON BASCH, of Vienna, then read a paper

ON CARDIAC DYSPNŒA.

His last experiments, which had been made, he said, with MM. Bettelheim, Grossmann, and Schronburg, confirm the theory of cardiac dyspnœa which he had framed some time ago. It is characterized by three phenomena: First, the dyspnœic type of respiration; secondly, the diminution, in the point of view of hematosis, of the respiration; thirdly, an increase in volume of the lungs. The last two phenomena are verified by means of percussion or spirometry. In cardiac dyspnœa, in the dog as well as in man, the increase in volume of the lung is due to insufficiency of the cardiac activity and to a consecutive repletion of the pulmonary bloodvessels; and, consequently, differs from the dyspnœa resulting from insufficiency of the right ventricle and of the consecutive anæmia of the lung, as in this last case the volume of the lung is reduced. Repeated experiments on dogs, in which the vagus had been previously cut, have established the fact that the increase or diminution in size of the lung is not due to peripheral irritation of the pneumogastric. On the other hand, the study of the thoracic pressure has demonstrated that the intra-thoracic pressure increases in the dyspnœa dependent on insufficiency of the left ventricle, and that it is in direct relation to the increase in volume of the lung, which is, consequently, passive.

The intra-thoracic pressure is, on the contrary, diminished in the dyspnœa due to insufficiency of the right ventricle, and is in relation with a diminution of volume of the thorax, which so constitutes an active phenomenon in cases of pulmonary anæmia. In the first case, the increase in volume of the lungs is due to a state of "pulmonary erection" which he described two years ago; while, in the second case, the diminution in the spirometric value results from the state of rigidity of the lungs, the existence of which can be discoverable on curarized animals.

As to the muscular effort, it brings on cardiac dyspnœa only after having produced a state of hyperpnœa; then an insufficiency of the left ventricle, which is accompanied by a state of pulmonary rigidity from which results a difficulty of ventilation.

In cases of cardiac asthma, dyspnœa also occurs when insufficiency of the left ventricle is established, and the prodromic dyspnœa must be attributed to an increase in volume of the lung, which shows itself by a state of tumefaction and rigidity of this organ.

DR. LEO, of Berlin, then read a paper

ON MOLECULAR CHANGES IN DIABETES MELLITUS.

He had made a series of researches on the nutritive changes in diabetic patients. These experiments have demonstrated that the quantity of oxygen which is absorbed and the quantity of carbonic acid which is eliminated are not identical in diabetic patients with the quantities of these same gases which are absorbed or eliminated by normal individuals. The contradictory results obtained by Pettenkofer and Voit, are due to the

fact that they failed to take into consideration the muscular effort, which is much less pronounced in diabetic, run-down patients than in healthy individuals. As to Ebstein's theory of the *rôle* of carbonic acid in diabetes, he did not think it sufficient. On giving carbonic acid inhalations to several diabetic patients, he noticed that the elimination of the sugar was not interfered with.

PROF. M. EBSTEIN, of Gottingen, said that if a diminution of carbonic acid proves that the tissues form less carbonic acid, the normal or increased elimination of the same acid does not imply that the production of carbonic acid in the tissues is not normal; it might even be diminished. On the other hand, the increase of the carbonic acid in the tissues, by inhalation of a large quantity of this acid, could not be compared to the action produced by the accumulation in the tissues of carbonic acid in a nascent state. The experiments of Leo do not demonstrate the hypothesis which he defends; for either the formed sugar is directly rejected, or else it deposits itself under the form of glycogen amidst the tissues; if this second supposition be a correct one, it would prove that when we increase the hydrocarbons of the organism, the saccharifying ferment has lost all power.

DR. DEHIO, of Dorpat, then spoke

ON THE PRODUCTION OF THE VESICULAR MURMUR.

The vesicular murmur, according to Betzold and other authors, was nothing but the tracheal or glottic sound, propagated throughout the pulmonary parenchyma. In laryngeal stenosis, however, even accompanied by great laryngeal noise, the vesicular murmur can be well heard. His starting-point having been that the vesicular murmur is not a propagated sound from the larynx, he made a series of experiments on artificially prepared lungs. The trachea was replaced by a large rubber tube and the lung inflated while he auscultated. Notwithstanding the absence of the trachea and the impossibility of any sonorous transmission, one hears very distinctly in prepared lungs the characteristic sound known as vesicular murmur. This vesicular murmur is, then, a sound having its origin in the pulmonary alveolus itself; and can be due only to the movement communicated by the inspired air column to the quantity of air which normally remains in the lung—the residual air.

(*To be concluded.*)

NEWS ITEMS.

The Third Annual Meeting of the American Association of Genito-Urinary Surgeons will be held at the Aquidneck House, Newport, on Tuesday and Wednesday next, May 21st and 22d, under the presidency of Dr. R. W. Taylor, of New York. The following papers are announced on the programme:

"The Question of the Radical Cure of Deep Urethral Stricture," by E. L. Keyes, M.D., of New York.

"The Essential Factor in the Etiology of Stricture and Its Bearing on the Question of Radical Cure, by John P. Bryson, M.D., of St. Louis.

"Cases of Nephrectomy and Nephrotomy," by R. B. Nall, M.D., of Memphis.

"A Contribution to Renal Surgery," by Nicholas Senn, M.D., of Chicago.

"Primary Syphilitic Lesions at the Meatus Urinarius," by Francis B. Greenough, M.D., of Boston.

"Induration of Venereal Sores not always an Indication that Constitutional Syphilis will Follow," by Edwin C. Burnett, M.D., of St. Louis.

"Malignant Tumors of Inguinal Ganglia Secondary to Epithelioma of the Penis," by Robert W. Taylor, M.D., of New York.

"The Relation of the Prostate to Chronic Urethral Discharge," by J. William White, M.D., of Philadelphia.

"Report of Three Cases of Chronic Cystitis of the Neck, resulting in the Formation of Hard, Fibrous Rings at the Site of the Sphincter Vesicæ; with Remarks," by John P. Bryson, M.D., of St. Louis.

"A Case of Melanotic Sarcoma of the Vulva," by Robert W. Taylor, M.D., of New York.

"Reflex Irritations from Stricture of the Urethra in the Female," by Fessenden N. Otis, M.D., of New York.

"Treatment of Gonorrhœa and Gonorrhœal Cystitis," by Edward R. Palmer, M.D., of Louisville.

"Cases," by Alexander W. Stein, M.D., of New York.

"Cases of Suprapubic Cystotomy," by L. Bolton Bangs, M.D., of New York.

"A Case of Scirrhus of the Bladder," by Arthur T. Cabot, M.D., of Boston.

"Hereditary Syphilitic Transmission Through Two Generations," by E. E. King, M.D., of Toronto.

"A Case of Poisoning by Chromic Acid, following its Application to Condylomata Acuminata," by J. William White, M.D., of Philadelphia.

"An Unusual Form of Vesical Calculus," by George Chismore, M.D., of San Francisco.

German Surgical Congress.—The Congress of German Surgeons, which held its eighteenth meeting this year, brought together nearly all the well-known workers of Germany, besides many from abroad. Among the latter a particularly hearty welcome was given to Billroth, of Vienna, who is an honorary member of the Society, but who has been absent from its meetings for several years owing to ill health. Professor Horsley, whose labors have been followed with equal interest by the physicians and surgeons of Germany, was the object of much attention.

The Congress was opened on April 24th with an address by the president, Professor von Bergmann. Referring to the sad April days of last year, which witnessed the sore struggle of the Emperor Frederick with his terrible disease, the speaker expressed a hope that, by steadfast adherence to what has once for all been recognized as true, there might some day spring from the seed of sorrow and suffering a blessed fruit for all, whether high or low, who trust to medical art.

It is impossible to furnish even a concise review of the abundant material presented at the sittings. The demonstrations of Professor Horsley (which were given in Dr. Dubois-Reymond's Physiological Institute, under the presidency of that gentleman) filled the theatre, and were received with loud applause. The same was the case with respect to an address by the Japanese physician, Dr. Kitassato, who, under the direction of Privy Councillor Robert Koch, has succeeded in obtaining pure cultures of the bacilli of tetanus.

The Congress held seven sittings under the presidency of Dr. von Bergmann. The presidentship for next year was on the afternoon of the third day again conferred on Professor von Bergmann. The close of the Congress

took place on the afternoon of April 27th.—*The British Medical Journal*, May 4, 1888.

Mind Cure only extreme Homœopathy.—The homœopathic doctrine of increasing potency with increasing attenuation has been ingeniously applied by the professors of the mind cure to their science, and one of them explains the working of their treatment as follows: "I have found, by actual experiment, that as the drug is attenuated its power is increased, until, when the drug is all gone and there is only mind, its greatest efficacy is reached."—*North-Western Lancet.*

A Powder for Sore Feet.—From Germany comes a bit of valuable information for policemen, carriers, collectors, and others, whose occupation requires them to be on their feet a great deal. No matter how comfortable or roomy their shoes, such persons are almost always more or less troubled with chafed, sore, or blistered feet. The difficulty may be readily overcome by the use of a powder, which is a necessary part of the German army equipment. It is known there as "Fussstreupulver," and consists of three parts of salicylic acid, ten parts starch, and eighty-seven parts pulverized soapstone. It keeps the feet dry, quickly heals sore spots, and prevents chafing. A powder of pulverized soapstone is also good.—*American Druggist*, April, 1889.

Corrigendum.

We are requested to state that the honorary degree of Doctor of Medicine conferred upon Dr. J. S. Billings came from the University at Munich, and not from that of Vienna.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 7 TO MAY 13, 1889.

By direction of the Acting Secretary of War, a Board of Medical Officers, to consist of: ANTHONY HEGER, *Lieutenant Colonel and Surgeon;* F. C. AINSWORTH, *Captain and Assistant Surgeon;* and JOHN O. SKINNER, *Captain and Assistant Surgeon*, will assemble at the U. S. Military Academy, West Point, New York, on June 1, 1889, to examine into the physical qualifications of candidates for admission and members of the graduating class. —Par. 9, *S. O. 108, A. G. O.*, May 10, 1889.

By direction of the Acting Secretary of War, F. C. AINSWORTH, *Captain and Assistant Surgeon*, will proceed to Albany, New York, on business connected with the Medical Department.—Par. 7, *S. O. 105, A. G. O.*, May 7, 1889.

APPEL, D. M., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Sill, Indian Territory, and ordered to Fort Bliss, Texas.—Par. 25, *S. O. 104, A. G. O., Washington*, May 6, 1889.

COWDREY, S. G., *Captain and Assistant Surgeon* —Relieved from duty at Fort Bliss, Texas, and ordered to Fort Marcy, New Mexico Territory.—Par. 25, *S. O. 104, A. G. O., Washington*, May 6, 1889.

FINLEY, JAMES A., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Assinniboine, Montana Territory, and ordered to Fort Totten, Dakota.—Par. 25, *S. O. 104, A. G. O., Washington*, May 6, 1889.

DE LOFFNE, AUG. A., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Totten, Dakota, and ordered to Columbus Barracks, Ohio.—Par. 25, *S. O. 104, A. G. O., Washington*, May 6, 1889.

TAYLOR, B. D., *Captain and Assistant Surgeon.*—Relieved from duty at Columbus Barracks, Ohio, and ordered to Fort Sill, Indian Territory.—Par. 25, *S. O. 104, A. G. O., Washington*, May 6, 1889.

By direction of the Secretary of War, PAUL R. BROWN, *Captain and Assistant Surgeon*, is relieved from further duty in the Department of the Platte, and will proceed to Fort Thomas, Arizona Territory, and report in person to the commanding officer of that post for duty, and by letter to the commanding officer Department of Arizona.—Par. 10, *S. O. 105, A. G. O*, May 7, 1889.

By direction of the Acting Secretary of War, the ordinary leave of absence granted WILLIAM B DAVIS, *Captain and Assistant Surgeon*, in Special Orders No. 232. October 5, 1888, from this office, is extended six months, on surgeon's certificate of disability. —Par. 20, *S. O. 108, A. G. O.*, May 10, 1889.

By direction of the Acting Secretary of War, WILLIAM P. KENDALL, *First Lieutenant and Assistant Surgeon*, will be relieved from duty in the Department of California, after he shall have complied with the requirements of Par. 2, S. O. 29, April 24, 1889, from these headquarters, and will then proceed to Fort D. A. Russell, Wyoming Territory, for duty at that station.—Par. 28, *S. O. 104, A. G. O.*, May 6, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING MAY 11, 1889.

BEARDSLEY, GROVE S., *Medical Inspector.*—Detached from the "Brooklyn," proceed home, and wait orders.

LOVERING, P. A., *Passed Assistant Surgeon.*—Detached from the "Brooklyn," proceed home, and wait orders.

NORTON, OLIVER D., *Assistant Surgeon.*—Detached from the "Brooklyn," proceed home, and wait orders.

HAWKE, J. A., *Surgeon.*—Detached from the "Essex," proceed home, and wait orders.

STOKES, C. F., *Assistant Surgeon.*—Detached from the "Minnesota," and ordered to the "Iroquois."

BRANSFORD, JOHN F., *Surgeon.*—Orders to the "Iroquois" revoked. Resignation accepted, to take effect May 4, 1890, with leave of absence granted to that date, with permission to leave the United States.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FOUR WEEKS ENDING MAY 11, 1889.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as Chairman of the Board for the Physical Examination of Candidates for Appointment as Cadets, Revenue Marine Service, May 3, 1889. Detailed as Chairman of Board for the Physical Examination of Officers, Revenue Marine Service, May 11, 1889.

IRWIN, FAIRFAX, *Surgeon.*—To proceed to Bath, Wicasset, Rockland, Belfast, Bangor, Ellsworth, Machias, and Eastport, Maine, as Inspector, April 22, 1889.

MEAD, F. W., *Passed Assistant Surgeon.*—Detailed as Recorder of the Board for the Physical Examination of Candidates for Appointment as Cadets, Revenue Marine Service, May 3, 1889 Detailed as Recorder of the Board for the Physical Examination of Officers, Revenue Marine Service, May 11, 1889.

WHEELER, W. A., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, April 16, 1889.

BRATTON, W. D., *Passed Assistant Surgeon.*—Relieved from duty at San Francisco, California, to assume charge of the Service at Portland, Oregon, May 8, 1889.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Baltimore, Maryland, for duty, May 8, 1889.

PERRY, T. B., *Assistant Surgeon.*—When relieved at Portland, Oregon, to proceed to San Francisco, California, and await orders. May 8, 1889. To report to the commanding officer Revenue Steamer "Rush," for special duty, May 11, 1889.

CONDICT, A. W., *Assistant Surgeon.*—When relieved from duty at Boston, Massachusetts, to await orders, May 8, 1889. To report to the commanding officer Revenue Steamer "Chase," for special duty, May 11, 1889.

HUSSEY, S. H., *Assistant Surgeon.*—When relieved from duty at Baltimore, Maryland, to proceed to Boston, Massachusetts, for duty, May 8, 1889.

GEDDINGS, H. D., *Assistant Surgeon* —To proceed to Baltimore, Maryland, for temporary duty, May 8, 1889.

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ORIGINAL ARTICLES.

DIGITAL DIVULSION OF THE PYLORUS FOR CICATRICIAL STENOSIS.[1]

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DIGITAL divulsion of the pylorus for cicatricial stenosis as first practised by Prof. Loreta, of Bologna, Italy, in 1882, has scarcely received the attention which it deserves anywhere, except in Italy.

The mortality from the twenty-five operations which the author succeeded in collecting is not great, when we consider that every successful case is a patient rescued from certain, and by no means distant, death, and this mortality is already decreasing.

The cases in which the operation would be of service are not so very rare. When searching the journals for records of such operations I found the reports of the presentation of many specimens of cicatricial stenosis of the pylorus to various pathological societies. My own experience has been limited to two operations. Even the first, though it proved fatal on the fourth day, encouraged me to operate again, as I was fully satisfied that had it been performed earlier, when the patient was stronger, there was no reason why it should not have been successful.

My second case had the following history:

Mrs. G., aged forty-eight years, a patient of Dr. Adams, of Vineland, N. J., was first seen by me at her home, near Vineland, in December, 1888. For convenience of study and operation I admitted her to Jefferson College Hospital in January, 1889. During 1884, 1885, and 1886 she had suffered from gastric ulcer. She had pain and vomiting immediately after eating, the vomiting occurring as many as six times in the twenty-four hours; she lost greatly in weight and had two severe hemorrhages. In 1887 all of the symptoms left her and for the greater part of the year she enjoyed excellent health, weighing in January, 1888, one hundred and forty-three pounds, which was more than she had ever weighed in all her life. During 1888 she became very ill with symptoms of pyloric obstruction and lost flesh rapidly, weighing after her admission to the hospital, only ninety-three and one-half pounds. She then vomited but once in twenty-four or forty-eight hours. This occurred when she laid down at night and was not accompanied by nausea. It was usually from one and a half to two quarts in quantity and measured nearly and sometimes quite as much as all the nourishment taken since the preceding act of vomiting, twenty-four hours before. Many articles taken during the day could be recognized; indeed, she stated that she had occasionally been able to recognize articles eaten as long as two weeks before. As she took her meals she felt that the stomach was becoming more and more distended and when she laid down at night, gravity brought the contents of her stomach into her throat and they were then vomited. Her bowels were obstinately constipated, acting only once in twelve or fourteen days, and then only after frequently repeated large injections; purgatives administered by the mouth producing no effect. She had lately been able to feel occasionally a small tumor about the size of a hazel-nut, two inches to the right of the umbilicus and situated quite deeply. Her stomach was greatly enlarged; distended by the carbonic acid gas developed from half of a soda powder, it reached as low as the umbilicus and as far as the small tumor, though we could not say that the tumor was connected with the stomach.

The vomited matters separated themselves into the usual three layers, the middle one being quite clear. They were nearly free from undigested food and not offensive; free hydrochloric acid, though searched for, was not found.

The operation was performed in the presence of the class of Jefferson Medical College, February 16, 1889. The surface of the abdomen had been prepared the day before, the mercurial dressing being still on when the patient was brought into the amphitheatre. Her stomach had been washed out on the morning of the operation with a solution of biborate of soda. This had been repeated until the fluid returned quite clear. Chloroform was used as the anæsthetic in preference to ether, as being less apt to be followed by vomiting. The hands and instruments having been prepared with antiseptic solutions, I made a median incision through the skin, about four inches long, terminating at the umbilicus. The peritoneal incision, however, was only three inches in length. There was but little bleeding and it was readily controlled by clamp forceps.

The dilated stomach sac was found directly beneath the incision. The junction of the stomach and duodenum, even from the outside, was markedly contracted and irregular on its surface. There were no adhesions and there was no tumor. The tumor was found to be a hard scybalous mass in the ascending colon which also contained quite a number of smaller masses of hardened fæces. As the wall of the stomach, three inches from the pylorus, felt quite healthy, I folded it transversely midway between the greater and lesser curvatures, and with a

[1] Read before the American Surgical Association, May 15, 1889.

pair of sharp scissors made an incision between one and a half and two inches in length. There was no bleeding requiring attention. I introduced my index finger through this incision and felt the pylorus, contracted to about the size of a No. 10 French catheter; its margins were quite hard and fibrous. As the fingers would not enter, the blades of a small uterine dilator were guided by the finger into the contracted pylorus, which was then readily dilated until it admitted the index finger. With the aid of a pair of œsophageal forceps it was still further dilated until both the index and middle fingers were admitted. The two fingers were then separated about half an inch, when I ceased, feeling that further effort would probably rupture the mucous membrane. This dilatation gave to the pylorus a circumference of four and one-half inches.

The mucous membrane of the stomach at the point of incision was brought together by a continuous silk suture, and the serous coat by a continuous Lembert suture also of fine silk carried in an ordinary sewing needle. This suture was introduced deeply into the muscular coat in order to obtain a firm hold; even then it tore out at one or two points, requiring an interrupted suture to be used at those places. When the finger was first introduced into the stomach it caused some retching, forcing most of the stomach out of the wound, where it was kept during the subsequent manipulations. After the wound in the stomach was closed the organ was carefully sponged and restored to the abdominal cavity. The abdominal wound was then closed and dressed in the usual manner.

The patient vomited about four ounces of blood half an hour after the operation, but there have been no nausea and no vomiting since. She was nourished exclusively by the rectum until the fourth day. From that time until the fourteenth day she was fed upon peptonized milk and animal broths. After the seventh day she took from forty-eight to sixty ounces of liquid nourishment in the twenty-four hours. Some solid food was given on the tenth day, and after the fourteenth day she was fed upon a carefully selected solid diet. On the thirtieth day after the operation she was able to eat eggs, mutton chops, oysters, beef, chicken, lamb, potatoes, cream, toast, bread and butter, milk, and coffee. Her temperature has never been over 99° F., nor under 98° F., since the operation. Her bowels act naturally every day. The abdominal stitches were removed on the ninth day. On February 8th, before the operation, she weighed 93½ pounds; March 25th, she weighed 110 pounds; April 15th, 118 pounds; and April 27th, 122 pounds. She was able to leave the hospital April 10th. She had no pain at any time, and required no anodynes.

I have succeeded in collecting twenty-five published operations; many of these are by Prof. Loreta. I had hoped to have obtained the results in all his cases, but Dr. Peruzzi, his chief assistant, replies to a letter of inquiry, that the Professor has performed in all about 30 operations, and that at least six more have been performed by other Italian surgeons. They were all successful when the diagnosis was correct. This would make the total number of operations about 43. The 25 operations included in my list were performed on 24 patients, one patient having been operated on twice successfully by Prof. Loreta. From the 25 operations there were 15 recoveries and 10 deaths, making a mortality rate of 40 per cent. Of the 10 deaths, 6 were due to shock, 2 to hemorrhage, 1 to tetanus, and 1 to suppression of urine. The large mortality from shock in an abdominal section performed in from half an hour to an hour is probably due to the fact that in this, as in most new surgical procedures, the operation is postponed too long. The mortality is already decreasing. Of the first 12 cases reported, 6 recovered and 6 died; while of the last 12, 9 recovered and 3 died. This mortality can, perhaps, be still further lessened by earlier diagnosis and operation, and by such methods of operation as are most quickly performed and accompanied by the minimum loss of blood.

DIAGNOSIS.—The diagnosis can be conveniently divided into two parts: 1. To determine the existence of pyloric obstruction; and, 2. To differentiate between obstruction caused by cancer and that caused by cicatricial stenosis. But few of the reported cases have such a typical history as the one I have related. The coexistence of dyspeptic symptoms, or of some still open ulcers, complicated the diagnosis in most of the cases. I should regard as of little value some of the symptoms upon which much stress has been laid. The material vomited in some cases consisted of partly digested food; in some it was wholly undigested and offensive; while in others it consisted of well-elaborated chyme. The character of the material indicates the health and physiological activity of the stomach, but throws little light upon the condition of the pylorus. In some cases sarcinæ were present, but in many they were absent. The same may be said of starch granules, of needles of the fatty acids, of free hydrochloric acid, of pain, and of other dyspeptic symptoms which have usually existed for many years before the symptoms of obstruction occurred.

The following symptoms I would consider of value: 1. A greatly dilated stomach. 2. The vomiting of from one to two quarts of material at one time. 3. The recognition in the vomited matter of articles that have been taken many hours, days, or weeks before. 4. When the act of vomiting is performed with great ease, without nausea, and the appetite is good immediately afterward. 5. Obstinate constipation. 6. The non-effect of ordinary purgatives. 7. A preceding history of gastric ulcer of several years' duration, and temporary improvement followed by simple obstructive vomiting of well-elaborated chyme many hours after taking food. This typical history occurred but twice among the twenty-four cases. Where the symptoms are obscure,

great reliance may be placed upon the detection of a decidedly enlarged stomach, as this is rare, except as a result of mechanical obstruction of the pylorus.

The mere presence of tumor is almost without value in the differential diagnosis between cancer and stenosis. In the 24 cases, tumor was present in 7, absent in 4, and not noted in 13. A rapidly growing, nodulated tumor low down in the abdomen is probably malignant. A poorly-defined tumor, not increasing in size, high in the abdominal cavity, is probably non-malignant. The average duration of cancer of the pylorus is one year (Brinton). The maximum duration, three years (Bartholow). The average duration of the gastric symptoms in 13 of the 24 cases in which this was noted was eleven years. The history of temporary improvement is against malignant disease. In the later stages of cancer, the obstruction is often removed by ulceration, and diarrhœa occurs. In the later stages of ulcer the obstruction increases, and the stenosis is more obstinate.

THE ABDOMINAL INCISION.—In all of the reported cases, but two methods of opening the abdomen have been used. One by an incision running from one inch below the ensiform cartilage to the extremity of the ninth rib on the right side, a distance of

OPERATIONS OF DIGITAL DIVULSION OF THE PYLORUS FOR CICATRICIAL STENOSIS.

No.	Operator.	Residence.	Date.	Age.	Sex.	Duration of disease.	Tumor.	Abdominal lesions.	Result.	Reference.
1	Loreta,	Bologna,	Sept. 14, 1882	47	M.	20 years	Tumor.	Edge of ribs.	Cure; 5 months after in perfect health.	Mem. Accad. Sci., iv. vol. Bologna.
2	Loreta,	Bologna,	Dec. 22, 1882	18	M.	7 years	None.	Edge of ribs.	Cure.	Raccog. Med., p. 147, 1883.
3	Giommi,	Cezena,	Feb. 1, 1883	?	F.	?	?	?	Death in 12 hours.	Ibid.
4	Loreta,	Bologna,	Mar. 17, 1883	46	M.	17 years	?	Edge of ribs.	Death in 37 hours.	Reacog. litore, March 30, 1883.
5	Loreta,	Bologna,	July 15, 1883	34	F.	?	?	?	Cure.	Lancet, p. 376, Sept. 1, 1883.
6	Frattini,	Venice,	June 9, 1884	?	?	?	?	?	Cure?	Gaz. d'Osp., p. 392, 1884.
7	Loreta,	Bologna,	Mar. 9, 1885	26	F.	?	Tumor.	Median.	Cure.	Bull. de la Sci. Méd., p. 137, 1885.
8	Loreta,[1]	Bologna,	.....	...	..	.....	.....	.....	Death; shock.	Med. News, Philadelphia, March 20, 1886.
9	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Cure.	" " " "
10	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Death; shock.	" " " "
11	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Death; hemorrhage.	" " " "
12	McBurney,	New York,	July 6, 1885	39	F.	20 years	Tumor.	Edge of ribs.	Death; hemorrhage.	Annals of Surgery, p. 372, 1886.
13	McBurney,	New York,	July 6, 1885	52	F.	30 years	Tumor.	Edge of ribs.	Death in 30 hrs. from suppression of urine.	" " " "
14	Loreta,	Bologna,	1886	19	F.	?	?	Median.	Cure.	La Riforma Med., p. 259, 1885.
15	Haggard,	England,	Mar. 9, 1886	51	F.	5 years	None.	Edge of ribs.	Cure; well March 30, 1888.	Brit. Med. Journ., Feb. 19, 1887.
16	Loreta,	Bologna,	Mar. 16, 1886	33	M.	?	None.	?	Death, 10th day from hemorrhage.	Accad. Sci., Bologna, April 24. 1887.
17	Barton,	Philadelphia,	May 22, 1887	58	M.	1 year	Tumor.	Median.	Death 4th day from exhaustion	Journ. Amer. Med. Assoc., p. 548, 1888.
18	Loreta,	Bologna,	Sept. 14, 1887	47	F.	7 years	?	Median.	Death, tetanus 5th day.	Gaz. de Osp., Milan, p. 803, 1887.
19	Loreta,	Bologna,	Oct. 13, 1887	35	F.	5 years	?	?	Cure.	" " " "
20	Loreta,	Bologna,	Oct. 31, 1887	34	M.	10 years	?	?	Cure.	" " " "
21	Treves,	London,	Dec. 1887	?	M.	?	?	?	Cure.	Lancet, p. 336, Feb. 18, 1888.
22	Loreta,	Bologna,	Jan. 30, 1888	54	M.	15 years	Tumor.	Median.	Cure; reconstracted.	Gaz. d. Osp., p. 618, 1888.
23	Loreta,	Bologna,	June 20, 1888	54	M.	15 years	.....	Median.	Cure; same patient; reoperation.	" " " "
24	Bull,	New York,	June 11, 1888	38	M.	20 mos.	None.	Edge of ribs.	Cure.	Letter from Dr. Bull.
25	Barton,	Philadelphia,	Feb. 16, 1889	48	F.	5 years	Tumor.	Median.		

[1] Letter to Dr. Harris stating that to November 30, 1888, he had had 9 cases, of which 5 were cured and 4 died, 3 from shock, and one from hemorrhage.

about six inches; the other, by an incision in the median line, between the ensiform cartilage and umbilicus, and from three to six inches in length. The first method was used by Loreta in his earlier cases, but he now uses the latter exclusively.

The stomach wound should be made far enough from the pylorus to be in healthy tissue. If some inches from the pylorus, it will be outside the zone of inflammation following the dilatation. Experimenting upon cadavers, I found that separation of my fingers more than an inch caused rupture of the mucous membrane.

The stomach wound has been closed in many ways, and all did well. In no case was there the slightest leakage. No case suffered from peritonitis, and in none was the stomach wound the cause of death. I would suggest that probably the best method would be a continuous suture of catgut to the mucous membrane and the suture of Appolito to the peritoneum.

Diet.—In some of the reported cases food has been given as early as a few hours after the operation, without injury. I delayed until the fourth day, although I see no reason why food should not be given earlier. Peptonized milk, animal broths, diluted wines, and the yolks of eggs would be the best articles, according to the condition of the stomach prior to operation. Rectal alimentation will be required until sufficient food can be given by the mouth. Solid food has rarely been given before the tenth day, and then sparingly.

Permanency of Cure.—Recontraction of the cicatricial tissue would naturally be feared, but Loreta, in January, 1885, nearly three years after his first operation, writes: "I have now operated on six cases. They all have recovered, and all remain well up to the present time." Haggard, in 1888, reports that the case he operated on two years before was "still perfectly well, no vomiting, dilatation of stomach less, and she has recently married." Peruzzi in his letter to me, March 22, 1889, states that he knows of only one relapse among the thirty cases upon which Prof. Loreta has operated. This patient was reoperated upon, recovered, and remained well.

In four of the fatal cases included in the list the obstruction was valvular, due to irregular contraction of the walls of the stomach. In another case, not included in the list, as the stomach was not opened, the valvular obstruction was caused by distortion produced by external adhesions. These were divided, and the patient made a good recovery. In another case not included in the list, the operator recognizing that he had badly ruptured the mucous membrane while stretching the pylorus, immediately performed pylorectomy, with recovery of the patient. In another case the obstruction was caused by an adherent pancreas. The cause of the adhesion was an ulcer starting in the posterior wall of the stomach and penetrating the pancreas. In this case, an incision about two inches in length was made from stomach to duodenum, passing through the pylorus. The two extremities of the wound were brought in contact and the wound sewn up at right angles to its position when made. When completed, it was parallel to the long axis of the body. This patient recovered after a serious illness.

PULMONARY CONSUMPTION A NEUROSIS.

By THOMAS J. MAYS, M.D.,
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The bacillus theory of pulmonary phthisis is accepted in some quarters as a self-evident truth. The reason for this cannot be positively and logically stated by even its most earnest devotees. If the bacillus is the cause of phthisis, then should our reasoning, based on the bacillus as such, be in harmony with the practical facts as they are found. It is not scientific to say that because a disease can be transmitted to the lower animals by inoculation that it is maintained in the same way in the human family under ordinary conditions. Cancer, and probably most diseases, are communicable in this manner, yet no one regards all such diseases as contagious.

We have learned from a long experience that there are certain well-defined general conditions to be fulfilled by a disease before it can be called contagious. These are (1) a protection of the individual against future attacks; and (2) an equal liability of all the unprotected, provided the same conditions obtain. In regard to the first prerequisite, it may be said that phthisis does not only not protect the individual, but really predisposes him to future attacks. Not only is this true of the individual, but all his descendants become more vulnerable to it. The very opposite holds true of smallpox and syphilis, which represent that class of diseases which are propagated from individual to individual, through a specific virus, under the ordinary conditions of life. These diseases not only protect the individual, but also lend a certain protective influence to his progeny—thus showing that the tendency of all true contagious diseases is toward an extinction of the disease, while in the case of pulmonary phthisis the leaning is toward an extermination of the individual and his offspring.

It is true, at least in some of the older cities of this country, that a slight diminution in the death-rate from consumption has taken place during recent years. This is not due, however, to any protection which the disease affords against future attacks, or to any precautionary measures which have been taken against bacillary infection, but entirely to the

fact that man, by a better acquaintance with the laws of preventive medicine—by improving the warming and ventilation of his dwelling and of his workshop, by avoiding overcrowded and damp habitations, by becoming more temperate in all things, and by living on good nutritious diet—has succeeded in establishing a greater harmony between himself and his environment, and has thus rendered himself less amenable to the disease.

In the second place, it may be stated that, so far as phthisis is concerned, there is no equal liability among those exposed to it. On the other hand, it is one of the most fastidious diseases in the selection of its victims. For example, no matter whether they are exposed or not, it may be foretold with a great deal of precision, that the youngest and then the oldest of a family are most prone to its attack. About three years ago I tabulated nearly five hundred cases of this disease, and found, as others had done before me, that this is the almost universal law. So, on the whole, the male is more liable than the female; the inactive more than the active; and those living near the sea level more than those living on the mountains. But the most positive proof that those exposed to the disease are not more liable to it than those not so exposed, are the statistics which have been collected in the Brompton Hospital for Consumption in London, during the thirty-six years which it had been in operation prior to 1882. During that period there were twenty-nine physicians and assistant physicians, and one hundred and fifty clinical assistants connected with the institution, and of all these, and of the one hundred and one nurses of which there is a health record, not a single case of phthisis could be traced to contagion, although six cases occurred among that number. That this exemption does not obtain, as is frequently asserted, in hospitals devoted to the treatment of infectious diseases, is well shown, at least so far as typhoid fever is concerned, in the records of the Massachusetts General and the Boston City Hospitals. In the former—from 1882 to 1887—no less than seven, and probably eleven; and in the latter—from 1884 to 1888—twenty-eight, cases of typhoid fever occurred among the medical attendants and employés.[1]

These and many other practical and incontrovertible facts oppose the contact theory of the origin of pulmonary phthisis, and naturally indicate that its existence must depend on other causes. Now what are these causes? In surveying the field of probability, it has appeared to me that the potentiality of disordered pneumogastric innervation to produce pulmonary disintegration has not received that degree of attention which is warranted by the facts. These nerves constitute the principal nerve supply of the lungs, and endow them with motion and special sensation. On *à priori* grounds one would think that a disturbance of their function might at least have some connection with the causation of phthisis; but, strange to say, the bacillus maelstrom has so completely swept everything before it, that no thought whatever is given to this phase of the problem. Now when we come to consider that disease of every cranial and of every spinal nerve is known to be followed by disease in the organs to which they are tributaries; that during recent years it has been found that peripheral nerve disease may exist independent of any central lesion; that this has thrown new light on many phenomena which were before supposed to be inexplicable; and that section of the vagi in animals is followed by inflammatory changes in the lungs, we may well ask if it is not incumbent on us as scientific men to ascertain whether or no the pneumogastric nerves share any responsibility in the evolution of pulmonary phthisis.

The influence of section of the vagi on the lungs has been studied by a great many observers, and it is known to be followed by death in rabbits within twenty-four hours, and in dogs within a week. The pathological changes which this operation calls forth have been compared by Traube, Mendelsohn, Barthez, Friedländer, and others to a broncho-pneumonia, and it is said that Schiff succeeded in developing yellow tubercles in the lungs of rabbits. In one of my own experiments, a series of which I have under way at present, and in which I slightly stretched the left vagus, and then wrapped it tightly with cotton saturated in glycerine, I found small yellow nodules under the pleura, which had all the appearances of yellow caseating tubercle in man. I do not relate this in the belief that all the characteristic lesions of phthisis can be produced in animals, but merely because it seems to confirm the findings of Schiff. The inflammation produced in this way is called "schluck" pneumonia, inasmuch as it is supposed to be due to the entrance of foreign particles, such as food, mucus, etc., into the windpipe on account of the paretic condition of the larynx. This does not seem to be true, however, for Arnsperger (*Virchow's Archiv*, vol. ix. pp. 197 and 437) has shown that if, after section of the nerves, a tube is inserted in the trachea, and the entrance of foreign bodies into the lungs is prevented, the same pulmonary changes occur.

At the present time, when almost every disease is traced to bacillary infection, it is interesting to know that this form of pneumonia contains microörganisms, which, on being inoculated, reproduces the disease in healthy animals. Thus Jens Schou (*Fortschritte der Medicin*, 1885, No. 15) found that in vagus-pneumonia an abundance of various bacteria

[1] Boston Medical and Surgical Journal, May 24, 1888, pp. 513 and 523.

were produced in the alveolar and pleural exudations. He isolated three varieties of bacteria, which he cultivated in proper media. The first was an elliptic coccus of medium size, which, on being injected directly through the thoracic walls into the lungs, or through the trachea, always generated a typical vagus-pneumonia. Culture fluids, which were sterilized before injection, always produced negative results. The other two were also cocci, of somewhat different shape from the first, but they were incapable of calling forth the same morbid process in the lungs. Friedländer's coccus could not be found. All the vagotomies were performed in a bloodless manner, under strict antiseptic precautions, and the animals were kept in clean cages and received no food.

These experiments certainly prove that vagus disintegration is followed by a pneumonia which produces certain kinds of microörganisms, which, on being introduced into healthy animals, reproduce the disease from which they originally sprang. This brings up the interesting question as to how far the same principle holds true in the artificial production of bacillary phthisis; and it also indicates the possibility that some more of our so-called infectious diseases, not dependent on microörganisms originally, may generate their characteristic bacteria, which, when introduced into the bodies of healthy animals, are capable of calling forth the original diseases.

That pulmonary consumption is either very closely related to, or possibly dependent on, the nervous system, has been present in my mind for a number of years, and in the fall of last year I embodied my views on this subject in two lectures[1] which I delivered at the Philadelphia Polyclinic, and in concluding which I said: "From the evidence which has thus been collected it appears that pulmonary consumption is certainly not a local disease; that it is essentially a neurosis of the peripheral nerves; that the neurosis in all probability establishes a herpes of the vagi, in the same manner as a similar affection is produced in the skin, which gradually leads to all the characteristic lesions of the disease; and finally we will no longer be forced to admit that the disease, originally diagnosed as pulmonary consumption, has been superseded, or is accompanied by paresis, dropsy, intercostal neuralgia, peripheral or multiple neuritis, herpes zoster, and a multiplicity of other diseases, if we accept the neurotic nature of this disease, which implies that all these complications are but the legitimate results, and that the lung affection is but one of the many manifestations of the fundamental disorder."

At this time I was not aware that this question had been approached in a similar way by any one else, but within a few days only I had the pleasure of finding that as far back as 1871,[1] under the heading of "Phthisis as a Neurosis," Dr. Clifford Allbutt discusses a variety of phthisis which, he holds, does does not agree with the general meaning of the term "phthisis." He says that patients belonging to this type of the disease come from the neurotic class, in illustration of which he cites the following cases which came under his observation:

"About a year ago I attended a refined lady belonging to a highly neurotic family, and whose children presented the like characters; she had been a nervous, irritable, neuralgic woman all her life, but never actually ill in any serious way. She was worn down by nursing one who was very dear to her, and whose death, which followed, shocked and prostrated her still more. She took to her bed with consolidation of the apex of the right lung, then of the left; in both the mischief spread rapidly, hectic fever ran high; in three weeks she was dead. Her age was forty-three. On the autopsy, which was made in consequence of her death appearing to her family to be very sudden, we could not find a single tubercle in the body; but the apices of the lungs were almost destroyed, and less degrees of mischief were found below.

I had seen another case, a few years before, in which such a galloping consumption had occurred after nervous depression in a highly neurotic subject. The son of nervous parents on both sides, the father being odd and eccentric, and the mother actually insane, he was himself one of those heady, impassionable, gay fellows who make our charming prodigals—and a very pretty prodigal he was. Ruined in purse and character, and terribly depressed, though I do not think in any great degree worn out by actual vice, he arrived at home to meet with the reception such parents (or, at any rate, one of them) were likely to give him. A few days later he began to feel more and more exhausted; his pulse and temperature ran up; his right lung solidified and broke down; the left lung followed; and after five weeks of distressing illness he was dead. This case was the first which impressed me strongly with its probable neurotic origin. . . . Having, then, cases of phthisis presenting the exact features already described, and having also many cases of catarrhal broncho-pneumonic phthisis, and, more strictly, tubercular phthisis, presenting like characters intercurrently with others of their own, I felt that neither the catarrhal nor the tubercular theory accounted for all instances . . . until I began to find, in my own practice and in the writings of alienists, how large a part phthisis plays in neurotic families. Even then, however, it did not occur to me to associate any particular form of phthisis with neurotic disorder, until a few striking cases of my unclassable variety occurred in neurotic families under circumstances which spoke too eloquently to be overlooked. . . . If we try to go a step further and ask for a pathological explanation of these facts, we approach a land of darkness. The more, however, I study the relations of the disease, the more I am satisfied that the lung mischief is also a neurosis; by which I mean that the lesion is one not originating in the local tissues, but in the nervous system."

Thus wrote a shrewd medical observer eighteen years ago, and how well he pictures an experience so familiar to most of those who have given studious attention to the details of this disease! and were he

[1] Pulmonary Consumption considered as a Neurosis. Therapeutic Gazette, November and December, 1888.

[1] The Medical Times and Gazette, 1871, vol. ii. p. 613.

to write under the advanced intellectual influence of the present day he would, I am quite sure, not limit his neurotic type of phthisis to that class of cases in which the nervous element predominates most obviously, but would include all that is implied under the term of chronic idiopathic pulmonary consumption.

As clearly as it has been impressed on my mind that pulmonary consumption is at its root a nervous disease, it has been a question as to the manner of demonstrating the truth of this belief to the best advantage. Several possible avenues presented themselves through which the question might be solved. First, by experiments on the vagi of animals; second, by the collection of cases of human phthisis in which vagus disturbance was the cause of the disease; and thus establish a literature of cases on the subject. After giving the former a thorough test I found it inadequate, because, for reasons which will appear further on, phthisis is evidently a disease not dependent on a transitory, but on a protracted and long-continued disorder of the vagi, and the regulation of the desired degree of irritation in the vagi of animals in order to produce the proper result is very difficult, if not impossible, to attain.

Having ascertained the shortcoming of the first method, I endeavored to find whether or no the second was a feasible one. At this time I did not know that so much practical evidence could be obtained to insure the success of the second method. But with the aid of the almost endless variety of material which is furnished by the library of the College of Physicians, I am glad to state that I am able to report one hundred and four clinical cases which demonstrate that disintegration of the vagi[1] leads to phthisis, pneumonia, bronchitis, œdema, and to other forms of pulmonary disease in the human subject. The reference to these cases are given only, and in the following order: (1) Those in which disintegration of the vagi produced disturbance of hunger and thirst; (2) those in which it produced suffocation, paralysis of respiration, or collapse of the lung; (3) those in which it produced pulmonary œdema; (4) those in which it produced hemorrhagic infarcts in the lungs and in the pleura; (5) those in which it produced bronchitis; (6) those in which it produced pneumonia; and (7) those in which it produced pulmonary consumption.

There were three cases[2] in which vagi disease disturbed hunger and thirst.

Six cases[3] in which vagi disintegration led to a sense of suffocation, paralysis of respiration, or collapse of the lungs.

Seven cases[1] in which vagus disintegration caused pulmonary œdema.

Four cases in which vagus[2] disintegration produced pulmonary infarcts.

Seven cases[3] in which vagus disintegration led to bronchitis.

Twenty-seven cases[4] in which vagus disease produced pneumonia.

Fifty-one cases[5] in which vagus disease produced pulmonary consumption.

[1] Some exceptions, which are noted further on.

[2] *Longet:* Anatomie u. Phys. des Nervensystems, Bd. 2, S. 313; *Swan:* Treat. on Dis. of Nerves, p. 170.

[3] *Robert:* Gaz des Hôp., 1853, p. 143; *Maixner:* Kriegsheilkunde, 1861, S. 116; *Longet:* op. cit., p. 312; *Goodhart:* British Med. Journ., 1879, vol. i. p. 542; *Schultz:* Virchow's Archiv, vol. vi. p. 271; *Neumann:* Deutsch. Arch. f. klin. Med., Bd. 28, S. 579.

[1] *Diebel:* Centralbl. f. Chirur., 1881, p. 748; *Gross, S. W.:* a private communication; *Duret:* Soc. des Science Méd. de Lille, 22 Avril; *Langenbeck:* Arch. f. klin. Chirur., Bd. 1, S. 77: *Moser:* Deutsch. Archiv f. klin. Med., Bd. 35, S. 418; *Busch:* Med. Times and Gaz., 1861, vol. ii. p. 176; *Heath:* Trans. London Path. Soc., vol. xxxv. p. 342.

[2] *Smith:* Lancet, 1888, p. 1022; *Stackler:* Centralbl. f. klin. Med., 1883, p. 316; *Putnam:* Boston Med. and Surg. Journ., February 14 and 21, 1889, p. 159; *Sommer:* Charité-Annalen, 1888, S. 647.

[3] *Riedel:* Fortschr. d. Med., 1883, S. 499; *Glynn:* Medico-Chirurgical Journ., 1887, p. 428; *Riegel:* Berlin. klin. Wochenschrift, 1885, No. 31; *Fearn:* Amer. Journ. Med. Sciences, 1848, p. 266; *Eccles:* Lancet, 1844, vol. i. p. 724; *Mendel:* Centralbl. f. Nervenheil., Bd. 8, S. 102; *Adamkiewicz:* Ibid., Bd. 3, S. 168.

[4] *Verga:* Allg. Chirur. der Kriegswunden, etc., Bd. 2, S. 83; *Gull:* Guy's Hosp. Reports, 1859, 3d series, vol. v. p. 307; *Quain:* Trans. London Path. Soc., vol. viii. p. 45; *Wilks:* Ibid., vol. x. p. 159; *Johnson:* Ibid., vol. xxiv. p. 42; *Maixner:* Vierteljahrschrift f. d. Prakt. Heilkunde, 1879, i. p. 87; *Löwitt:* Ibid., 1880, part 3; *Weil:* Deutsch. Arch. f. klin. Med., Leipz., 1876, Bd. 14; *Penzoldt:* Ibid., Bd. 13, S. 107–124; *Shech:* Ibid., Bd. 23, S. 2; *Stadelmann:* Ibid., Bd. 33, S. 125; *Freund:* Ibid., Bd. 37, p. 405; *Kast:* Ibid., Bd. 40, p. 41; *Goodhart:* Brit. Med. Journ., 1879, vol. i. p. 542; *Unverricht:* Neurol. Centralbt., Leipzig, 1888, p. 164; *Pelizaeus:* Inaug. Disser., Wurzburg, 1880; *Déjerine:* Deutsche med. Zeitung, 1887, p. 711; *Freund:* Wien. med. Wochenschr., 1886, p. 168; *Stewart:* Edinb. Med. Journ., April, 1881, p. 868; *Hubrich:* Arch. f. Psychiat., Bd. 5, S. 550; *Thomsen:* Ibid., Bd. 19, S. 191; *Lecorché:* Centralbl. f. klin. Med., Vol. i. p. 282; *Hewson:* Penna. Hosp. Reports, 1868, p. 219; *Fergusson:* Amer. Journ. Med. Sciences, 1842, vol. iii. p. 221; *Schmidt:* Centralbl. f. Nervenheilkunde, vol. vi. p. 39; *Maier:* Virchow's Arch., vol. lxi. p. 1; *Eger:* Arch. f. klin. Chirur., Bd. 18, S. 502.

[5] V. Ziemssen Handbuch der Pathologie, etc., Bd. 11, S. 2; *Bernheim u. Simon:* Int. Centralbl. f. Laryng., 1887, 1888, p. 68; *Gull:* Guy's Hosp. Reports, 1859, 3d series, vol. v. p. 307; Ibid., p. 312; *Merzejewsky u. Rosenbach:* Neurol. Centralbt., Leipzig, Bd. 4, p. 361; *Guttmann:* Virchow's Archiv, Bd. 59, p. 51; *Heusinger:* Ibid., vol. xxvii. p. 206; *Merklen:* Deutsche med. Zeitg., Berlin, 1887, p. 1108; *Angyan:* Wien. med. Wochenschr., 1884, p. 515; *Longet:* op. cit., Bd. 2, S. 313; *Rosenheim:* Arch. f. Psychiat., Bd. 18, S. 782; *Vierordt:* Ibid., Bd. 14, S. 678; *Koppen:* Ibid., Bd. 17, S. 63, three cases; *Vierordt:* Ibid., Bd. 14, Heft 3; Ibid., S. 678; *Oppenheim u. Siemerling:* Ibid., pp. 125, 145, two cases; *Eisenlohr:* Ibid., Bd. 19, S. 314; *Oppenheim:* Ibid., vol. xx. S. 1; *Sakaky:* Ibid., Bd. 15, S. 584; *Wilks:* Trans. London Path. Soc., 1859, vol. x. p. 1; *Sharkey:* Ibid., 1868, p. 27; *Whipham:* Ibid., vol. xxxiii. p. 82; *Treves:* Ibid., 1887, p. 367; *Murchison:* Ibid., vol. x. p. 240; *Baumler:* Ibid., vol. xxiii. p. 66; *Barlow:* Ibid., vol. xxx p. 254; *Bleuler:* Deutsches Arch. f. klin. Med., Leipzig, Bd. 37, S. 527; *Beger:* Ibid., Bd. 23; *Shech:* Ibid., Bd 23, S. 2; *Pilz:* Arch. f. k. Chirur., Bd. 9, S. 336; *V. Langenbeck:* Ibid., Bd. 1, S. 73; *Stimson:* Amer. Journ. Med. Sciences, 1881, p. 192; *Guttmann:* Centralbl. f. klin. Med., vol. i. p. 393; *Roth:* Ibid.,

I think the histories of these cases, among other things, give the most ample evidence that vagus disease not only leads to lung disintegration, but to that special form of disintegration known as pulmonary consumption. Of the 104 cases recorded, there is direct proof that in 84 the vagus disturbance was followed by lung disease, viz., in 6 by paralysis of respiration and lung collapse; in 6 by œdema; in 4 by infarcts; in 6 by bronchitis; in 25 by pneumonia; and in 37 by phthisis; while in the remainder of the cases the vagi were probably equally diseased, but were not examined, but in most of which it appears that the medulla oblongata, or some other point in the respiratory centre, was involved in the disease. Moreover, in the collection of my cases I found that the ganglion of the trunk of the vagus had been investigated *post-mortem* in 20 cases of pulmonary consumption, by Dr. A. Lewin (*Beiträge zur Pathologie der N. Vagus.* Dissertation, St. Petersburg) and in 11 cases of the pneumonia of paralytics, by Drs. Bianchi and Armandi (*Neurologisches Centralblatt*, 1888, p. 452), and it was found diseased in every instance. Hence, we have a definite record of 57 cases of phthisis, 36 cases of pneumonia, and 25 cases of other lung disease associated with vagus disease—besides 18 other similar affections concerning which there is a strong suspicion that they were due to the same lesion—or 136 cases in all. When we consider that no one, I believe, except Dr. Lewin, has investigated this question with a view of determining the relationship between vagus disease and phthisis, and found the association so constant, and that all my cases were collected from current medical literature, where they obtained incidental lodgement only, so to speak, leads one to believe that the two conditions are more intimately connected, one with the other, than is generally supposed.

These cases further show that phthisis is not a separate and independent disease specifically created by the tubercle bacillus, but that it is a condition which is slowly evolved out of other pulmonary disorders depending fundamentally on vagus disintegration. For in not a single instance was phthisis or even pneumonia produced by a sudden interference with the integrity of the vagi, as in division or in injury, but the devitalizing processes in both of these conditions was established either by a long-continued pressure on, or a slow disintegration of these nerves. So far as the character of the causes of vagus disintegration is concerned in my collection of cases, it may be said that in 94 these were distributed as follows: Neuroma, 3; atrophy and paralysis, 12; ligation, division, and other injury, 8; compression by enlarged glands, tumors, and aneurisms, 43; carcinoma, 7; and neuritis, 21.

These cases not only establish conclusively, then, that phthisis, pneumonia, and various other pulmonary affections are produced by long-continued pressure on the vagi, as by tumor, etc.; but that these diseases, and especially phthisis and pneumonia, are the result of a common degeneration of the vagi and the peripheral nerves, induced by the action of alcohol, syphilis, diphtheria, etc. Then, as further evidence of the implication of the peripheral nervous system in phthisis, we have the work of Dr. Jappa ("Zur Frage über die Veränderungen der peripherischen Nerven bie Schwindsucht," *Neurologisches Centralblatt*, Bd. 7, 1888, p. 425), which comprises the histological examination of the peripheral nerves in the bodies of fifteen persons who died of pulmonary tuberculosis. He investigated the sciatic, post tibial, internal plantar, crural, internal saphenous, superficial peroneus, median, ulnar, radial, cutaneous median, and radial interosseus nerves, and in every case nearly all these excised organs showed marked degeneration. The changes were in the axis-cylinder and perineurium, as well as in the sheath of Schwann, and the author says they should be regarded as parenchymatous in character. The intensity of the morbid changes was greater in the peripheral endings than in the trunks of the nerve. The vagi were not included in the examination. The spinal cord was inspected in twelve cases and found normal. In all these cases there were no manifestations of nervous symptoms during life, with the exception of some undefined neuralgias and muscle pains, general hyperæsthesia, which usually develop in the high fever and emaciation of phthisical patients.

The fact that not only alcohol, syphilis, and diphtheria, but measles, scarlatina, smallpox, copper, zinc, mercury, etc., are capable of playing a causative *rôle*, both in peripheral nerve disease and in phthisis, opens up the very interesting field of inquiry, which time and space forbid me to enter at present, as to how far these toxic agents are instrumental in maintaining the current death-rate of phthisis. When we consider the all-pervading evil effects of these agents, either in their acquired or inherited form, the conclusion becomes irresistible that they exercise a most powerful influence in this direction.

There is no more reason to suspect, however, that because pulmonary consumption is the morbid product of manifold causes, each cause brings about a specific form of the disease. That the pathological changes may vary in character and in appearance is

1885 and 1886, p. 294; *Rosenbach:* Ibid., vol. iii. p. 40; *Basevi:* Jahrb. f. Kinderheilkunde, 1878, p. 414; *Hanot:* Archiv Gén. de Méd., 1876, tom. 28, pp. 294, 297; *Grocco:* Riv. Clin. 25, p. 12, 1886; *Schmidt:* Jahrb., Bd. 214, S. 29; *Pitres et Vaillard:* Rev. de Méd., 1886, p. 193; *Senator:* Zeitschr. f. klin. Med., vol. xv. S. 61; *Guiter:* Virchow u. Hirsch, Bd. xxii. Part i. p. 203; *Vierordt:* Neurol. Centralbl. vol. v. p. 421; *Buss:* Centralbt. f. d. med. Wis., 1888, p. 195; *Eisenlohr:* Centralbl. f. d. Nervenh., vol. ii. p. 100; vol. x. p. 12.

true enough, but this is probably due more to a difference in the rate at which the disease travels than to a difference in the mode of its causation. If this were true, it would at least lend some color to the view that the nerve degeneration which accompanies what is now known as bacillary phthisis, is due to the destructive action of the bacillus tuberculosis. I have, however, not been able to find the record of a single case in which the tubercle bacillus had been associated with the degenerated nerves in phthisis.

In this connection it is certainly permissible to quote the very appropriate opinion of Dr. Gull, expressed by him in 1859, while discussing two of his cases, to which I refer in this paper. He said (*Trans. Lond. Path. Soc.*, 3d series, vol. 5, 1859, p. 312):

> This case affords an excellent illustration of the effects which are referable to paralysis of the pulmonary plexus on one side, accumulation of muco-purulent secretion in the paralyzed bronchi, subsequent dilatation of the tubes at their peripheral distribution, concomitant exudation into the air cells, hepatization, and at length disintegration of tissue on the other. . . . It is one of the evils of a too exclusively humoral pathology (*bacillary pathology we might say at the present day*)[1] that leads us to overlook the minute anatomical relations of disease, which are in themselves often a key to the sequence of morbid changes. These cases illustrate this proposition, for the possible local effects on the lung of injury to the pneumogastric and pulmonary plexus being recognized, whenever cause for that injury exists we may anticipate its results, and are not wholly dependent upon physical examination as we are if we limit our pathological view to the mere changes in the lung without considering how they are produced.

In his comments on one of his cases, to which I also refer, the eminent Dr. Wilks expresses himself in a similar strain. He says (*Trans. Lond. Path. Soc.*, vol. x. p. 1):

> It has been said that the patient died of phthisis, and the tumors were found accidentally, but in all probability the affection of the nerves—that is, of the pneumogastric, was the cause of the pulmonary disease, and therefore, so far from neuroma being a harmless affection, it was the cause of the girl's death. This idea was suggested by the observation of several other cases of lung disease occurring in connection with disease of these nerves, particularly as witnessed in aneurism of the aorta and cancer of the œsophagus. In these diseases death is often brought about by pulmonary affection, and the pneumogastric nerves are found implicated in the disease or pressed on by the tumor.

This brings up the collateral question whether pulmonary consumption invariably follows vagus disintegration. As a rule this obtains if, as has already been stated, the irritation is sufficiently prolonged. When this is not the case the evidence seems to show that only functional disturbance of the lungs and heart occurs, although I have found records of cases where, in the human subject, it is stated that one vagus was divided without detriment to life. By way of a slight digression I may say that on reviewing the literature from which I culled my cases, it is impossible not to believe that many of our functional and organic heart diseases depend on a lesion of the pneumogastric nerves. So, on the other hand, it must not be expected that a lesion of the vagus or of the nervous system is the primary source of every case of pulmonary consumption. There can be no doubt that phthisis is an auto-infectious disease, as has already been intimated, and that if a process of caseation is once established in the body there is always danger of secondary tubercular infection. Such examples of pulmonary consumption arise in consequence of caseating centres having been established in or around the pelvic organs through the instrumentality of pelvic cellulitis or salpingitis, as well as from caseating lymphatic glands anywhere in the body. I suspect that these causes play a more important rôle in the maintenance of phthisis than is generally suspected, especially in the female sex.

In summing up the evidence which has been adduced in this paper, I think it may be said to demonstrate that nature herself is constantly carrying on the experiment of phthisis-production on an extensive scale in the human family, and this to a degree unattainable in the lower animals through artificial means, and which is not done by an infusion of tubercle bacilli, but by a slow process of nerve degeneration, especially implicating the pneumogastric nerves; and that therefore this disease can no longer be regarded as confining its ravages to the lungs.

TREATMENT.—It is not my purpose at present to enter into any detailed discussion of the special treatment of phthisis, but merely to point out the general therapeutic principles which are indicated by this new line of thought in regard to the origin of the disease. And at the very outset it may be stated that if the value of any one therapeutic measure is more firmly established than that of another, it is that rest is the *sine quâ non* in the cure of nervous diseases. This has been abundantly proven by the scientific and practical researches of Dr. S. Weir Mitchell. Indeed, he demonstrated its efficiency in the treatment of phthisis more than ten years ago, and of which I was ignorant when I first wrote on this subject. He says on page 93 (*Fat and Blood*):

> "I have ventured, without much hope, to treat three cases of phthisis in the same manner (*i. e.*, with rest, massage, electricity, and feeding). There are cases of this nature in which exercise wearies. One of the cases treated got well and remained well. There was every evidence of pulmonary trouble. No. 2 improved enormously in all respects, and relapsed hopelessly, owing to large and repeated bleeding from piles and rectal fissure. No. 3, a male, æt. twenty-four, was treated by rest and massage, without electricity, and improved so as to resume his work."

As for myself, I can say that since I realize its importance I have had a good deal of practical ex-

[1] Italics mine.

perience with this method of treating consumptives, and can testify to its superiority. It is my custom to insist on such patients either to sit quiet or to remain in the recumbent posture during at least seven-eighths of the twenty-four hours. Those who readily tire in these positions for this length of time, must go to bed and remain there constantly for a month or six weeks, or longer if it is considered necessary, allowing only such exercise as is necessary to carry out other lines of treatment.

In order to supplement the active physical exercise of which the patient is deprived by this method of treatment, general massage and electricity must be employed once or twice a day, both of which will be found most useful adjuvants in making the rest-cure of consumption a success. In addition to the general application of electricity and massage, it is also very important to apply these measures locally over the course of the pneumogastric nerve. The galvanic current is preferably employed here, the negative pole being placed under the ear, and the positive pole on the clavicle near its union with the sternum, as well as over the epigastrium.

Flaxseed meal poultices, or the external application of moist heat to the chest, I have employed for a number of years in the treatment of this disease, and with the most gratifying results. These applications are made only during the daytime, and changed every three hours, or oftener, if they become cooler than the body—care being taken that they cover the apices of the chest well.

Another valuable acquisition to the therapeutics of consumption is the inhalation of compressed and the exhalation into rarefied air, or *vice versa*. Any one who has given this method a faithful trial has found abundant evidence of its usefulness. It gives complete ventilation to, and increases the capacity of, the chest; it relieves the dyspnœa, and acts as a powerful tonic to the whole body. In order to reinforce the good effects derived from this method of treatment, the patient must be taught to practise forced respiration—*i. e.*, to take eight or ten forced voluntary breaths in succession every hour or half hour.

In connection with all this, we must not lose sight of the marked benefit which may be derived from internal treatment. Pulmonary consumption is preëminently a wasting disease, and any food or medicine which supplies this constant waste, which facilitates digestion and assimilation, which checks the fever and renders support to the nervous system, is indispensable, and for this reason nutritious foods, cod-liver oil, hypophosphites, antifebrin, antipyrin, strychnine, quinine, atropine, etc., are of such great value, if used with discretion.

Furthermore, it is also obvious that in all cases of dyspnœa where there is no good reason for suspecting that the primary cause for it exists in the respiratory passages, the lungs, or the heart, it is an all-important matter to make a thorough examination of the vagi, even to the extent of cutting down upon them, if necessary, to become thoroughly satisfied that their potency remains inviolate. For these cases undoubtedly show that persistent dyspnœa, aphonia, and hoarseness often depend on paresis of one or both vocal cords (to relieve which tracheotomy often is and has to be performed), in consequence of a pressure upon the vagi or lower laryngeal nerves, by the thyroid or lymphatic gland, or tumor of some kind, which will be relieved by liberating the imprisoned nerves.

SALOL IN THE VOMITING OF INDIGESTION AND OF PREGNANCY.

By R. B. McCALL, M.D.,
of Georgetown, Ohio.

The claims of salol in the treatment of some forms of diarrhœa, particularly cases in which the products of fermentative action are noticeably abundant, are fairly established. In a somewhat extended and varied experience it has achieved more than an ordinary measure of success.

During the recent summer months there was afforded me an opportunity to test its reputed efficacy in dysentery.

Case I. was that of a child seven years of age, and very delicate. The evacuations from the bowels were frequent and large, and decidedly sanguinolent, consisting of about equal quantities of blood and mucus, only partially blended; tenesmus variable in intensity, occasionally exquisite; elevated temperature, accelerated pulse, hurried respiration, coated tongue, unpleasant breath and tympanitic abdomen. The usual treatment failed to afford any relief. Salol was given at first in doses of one and a half grains, gradually increased to two grains, repeated for the first twenty-four hours at intervals of three hours and afterward less frequently. At the end of the first twelve hours evacuations were observed to occur less often, the efforts at stool were less painful, the discharged matters exhibited a diminished proportion of blood. In two days' time the dejecta assumed a nearly normal alvine character — traces of blood and mucus reappeared at intervals for a short time, but convalescence was soon established.

In this instance the elevated temperature, accelerated pulse rate, hurried respiration, tumid belly, and large amount of blood and mucus, much of the former unmingled with the latter, indicated acute catarrhal colitis, set up by fermentative and putrefactive changes. The history and appearance and general condition of the child disclose a state of imperfect nutrition, the result of faulty digestion. Any agent that would modify or arrest fermentation and putrefaction must mitigate or cure the diseased condition resulting therefrom.

Case II.—Maggie W., married, aged thirty-three years, of lymphatic temperament, delicate, no living children, a history of two premature births and of persisting gastric irritability in girlhood. More than three years have elapsed since stomach began to reject all solid food and much of a liquid form, only milk being partially retained, broths of every description sharing the same treatment.

Three years ago I was requested to prescribe, at which time patient's condition seemed deplorable—inanition seemed imminent. So emaciated was she that there appeared to be only the bony frame wrapped in integument; an anxious, hopeless, profoundly fatigued expression Under treatment she made some improvement, retained more of her exclusive article of food than she had previously, but continued to vomit a number of times every day. Vomited matter consisted of whatever had been ingested and a frothy, extremely acid mucus which seemed to excoriate the pharynx and mouth as it flowed up. Patient disappeared from observation, to reappear recently. By the diligent and heroic use of scale pepsin with hydrochloric acid, amendment set in and continued for three months, milk being better borne and digested, and weight in that time augmented by twenty-five pounds, but vomiting persisted.

The resources of the materia medica were taxed with but little additional advantage. The entire armamentarium of antiseptics and acids, bitter and acid tonics, pepsins and lactopeptones, not forgetting ingluvin, were called into requisition, but without avail. Preparations of carbolic acid and creasote were employed with brief temporary relief. Sodium sulphite and sodium phosphate apparently exercised no influence. To add to the embarrassment of the case, the patient became pregnant, gastric irritability increased, with emaciation and threatened prostration.

Of course, every appeal to procure artificial abortion was resisted, and finally nature kindly interfered and brought about the hoped-for event, whereupon although the gastric trouble lost its aggravated intensity and persistency, it still continued.

While the fœtus remained *in utero*, oxalate of cerium, ingluvin, scale pepsin (Jensen's), belladonna, aconite, aconite and belladonna combined, gelsemium, bromide of potassium, carbolic acid, bromocaffeine, and a number of other drugs of more or less repute, were administered with a little apparent advantage from belladonna, oxalate of cerium, and carbolic acid; belladonna was frequently repeated, and carbolic acid given in as large doses as was deemed advisable or safe.

Only the one article of food was tolerated. Oxalate of cerium (which I had very generally found serviceable) exhibited in small or large doses, at long or short intervals, exercised absolutely no effect whatever. Reflecting that the condition of the stomach must be essentially that of the bowels in catarrhal diarrhœa and dysentery, and reasoning that what had been effectual in the one must *à priori* be of some service in the other, salol was prescribed in doses of one and a half grains, repeated at intervals of three hours. For three days no other effects were observed than diminished frequency and difficulty of the effort. Restlessness and sleeplessness vanished, better tolerance for milk was acquired. In the following week the dose was increased to three grains, exhibited thrice daily; result, cessation of vomiting, tranquillity of nervous system, and composure of mind; however, an attempt to take solid food would frequently result in its rejection. Milk is now taken without unpleasant consequences, and some portions of solid nutrient material are retained and undergo perfect digestion; a feat that has not been accomplished for more than three years.

From the foregoing it may fairly be concluded that salol may check fermentative action. I have also given it in two cases of pregnancy with like satisfactory results.

Case III.—Mrs. M., in the eighth month, had been vomiting occasionally through the day, but more particularly and frequently after going to bed at nights, for two months. Whenever the body assumed the recumbent posture the acid contents of the stomach would well up into the throat and the regurgitation-like vomiting would last sometimes for an hour before final subsidence. No other spells during night; no morning nausea or gastric irritability manifested. Salol in two-grain doses was directed to be taken three times a day. In a short time there was marked improvement, the annoyance during the day ceased almost at once. In the course of a week the evening disturbance ceased to recur. The case is still under observation. I am told that a single three-grain powder answers for the entire day.

Case IV.—The other case of this class was in the seventh month of pregnancy, and was not so much annoyed by acid vomiting as by sourness and heartburn, with swelling and hardness of epigastrium. In this, as in the previous instance, the desired result followed on the administration of the medicine.

To sum up, wherever there is indigestion characterized by acid and gaseous eructations or putrefactive changes, or gastric or intestinal catarrh from fermentation, salol is of value. In the indigestion of childhood, from over-feeding or indulgence in indigestible food, where there is a heavily loaded tongue and fetid breath, the drug may be used with good effect.

MEDICAL PROGRESS.

Prophylaxis of Tuberculosis in Prussia.—In the *Berliner klinische Wochenschrift* of May 6, 1889, there appears a notification signed by the President of Police of Berlin, announcing prophylactic regulations against the spread of phthisis—based on Cornet's conclusions—which are at once to be enforced. The notification reads as follows:

By means of Dr. George Cornet's researches regarding the spread of tuberculosis—made under the guidance of Dr. Robert Koch—it has now been proven, beyond doubt, that only the *dried sputum* of consumptives, or those suspected of having the disease, may be injurious to man. The sputum being dried, becomes powdered,

and may then become mixed with the air, thus possibly causing infection of the human body. In order to prevent the spread of tubercle bacilli, which undoubtedly are the cause of tuberculosis, consumptives should be required not to expectorate into a handkerchief, on the floors, or against walls, but to use exclusively a spittoon or spitcup, the latter being especially recommended, as it prevents any soiling of the floor.

Disinfection of the sputum is considered unnecessary by Dr. Cornet, as sublimate does not sterilize it, and carbolic acid is only valuable when used with great precaution. The spitting-cups should be washed in boiling water and their contents thrown into drains. Spittoons containing sand or sawdust should not be used, as they only facilitate the drying and pulverization of the sputa. A small amount of water should always be kept in the spitcup.

On the ground of public health, it is directed by the President of the Police Board that the following regulations shall in future always be enforced in private institutions, insane asylums (as among the insane tuberculosis is frequently observed), and by practitioners to whose care consumptives are committed:

1. Unquestionable consumptives are to be isolated, as far as possible, from patients suffering from other diseases.

2. All patients suffering from this disease, as well as those in whom the disease is suspected, are hereby required to expectorate into spitcups containing a small quantity of water. These vessels are to be washed out with boiling water at least once a day and their contents to be emptied into the drain. Any soiling of the floors, walls, beds, etc., should be immediately cleansed with boiling water, or by other equally effective measures. Soiled clothing and bedding should also be boiled.

3. Beds, mattresses, quilts, etc., as well as all other utensils and furniture used by the patients, must be disinfected in accordance with the police regulations of February 7, 1887, regarding contagious diseases. Articles that cannot be disinfected by boiling must be brought to the City Disinfecting Institute and there undergo thorough disinfection.

4. The rooms occupied by consumptives must, after their death, be disinfected in accordance with the regulations referred to in the preceding paragraph.

Salol as a Dressing.—At the last meeting of the Hunterian Society of London MR. CORNER exhibited a series of cases illustrative of the antiseptic power of salol (salicylate of phenol) as a dressing for wounds, after the part had been rendered aseptic by a 1 in 20 solution of carbolic acid. Salol has a pleasant aromatic odor, can be used freely without fear of irritation or poisoning, is absorbent of moisture, and whilst drying forms a hard but friable covering. It prevents putrefaction, but does not destroy it when established. It has been used in increasing frequency for several years at the Poplar Hospital, and with excellent results in compound fractures and dislocations, also as a dressing in amputations, minor and major, and in compound comminuted fracture of the skull.

The first case shown was a compound comminuted depressed fracture of the frontal bone, in which the bone was elevated, and some spicules removed, the wound being afterward washed with 1 in 20 carbolic acid, the opening filled with salol, and a drainage-tube inserted. The dressing was undisturbed for fourteen days, remained sweet, and the wound healed on the twenty-sixth day. The temperature remained from the first under 100°.

A second case treated in January, 1889, was a compound fracture of the olecranon, head of radius, and humerus, opening the elbow-joint, with considerable damage to the soft parts, the elbow having been crushed by the passage of a railway engine over it. The olecranon was split and drawn up, causing serious tension of skin, and necessitating removal of both portions. The antiseptic treatment and dressing were the same as in the previous case, but required changing after four hours and again next day, in consequence of oozing through; the parts were then left undisturbed for thirty days. The temperature went up the day after the injury, and remained about 101° F. for three days, 100° F. for two days, then became normal.

Two other cases were shown, one a crushed compound fracture of the finger done up twenty-one days before, and not exposed since, there having been neither pain nor elevation of temperature; the other was a compound fracture of the first phalanx of the finger, dressed at the time of the accident, and undisturbed for a month, when it was found perfectly healed. It was pointed out that this was the common experience in such cases, and that even if gangrene followed, the parts remained sweet.—*The British Med. Journal*, May 4, 1889.

Incontinence of Urine in Children.—DR. DESCROIZILLES, in an article on the subject of incontinence of urine in children, says that although the disorder is frequently of nervous origin, it also often accompanies constitutional weakness, and the strict application of hygienic and dietetic principles will frequently cause complete cure. There are many cases where further treatment becomes necessary. Descroizilles has tried various remedies, and states that he has found the following formulæ to be most efficacious:

I.

℞.—Extract of belladonna . . 6 grains.
Powdered gum arabic }
Powdered marshmallow } . āā q. s.—M.

Make into forty pills. One to fifteen to be taken daily, according to the severity of the case.

II.

℞.—Syrup of belladonna . . . ℥ij.
Syrup of tolu }
Syrup of marshmallow } . āā ℥j.—M.

A half teaspoonful two or eight times a day.

III.

℞.—Atropine . . . . . ⅛ grain.
White sugar . . . . . ℥iij.—M.

Make into forty powders. Two to four to be taken daily.

IV.

℞.—Bromide of potassium . . . ℥j ss.
Linden flower water . . . ℥ij.
Syrup of sugar }
Syrup of bitter orange-peel } āā ℥j.—M.

A half teaspoonful one to four times a day.

V.

℞.—Sulphate of strychnine . . 2 grains.
Syrup of sugar . . . . ℥vj.
Water . . . . . ℥ij.—M.

A half teaspoonful one to twenty times a day.

Bromide of potassium is also useful in four-grain doses, given one to four times a day.—*Rev. Gén. de Clinique*, April 18, 1889.

On Ehrlich's Diagnostic Sign of Enteric Fever. — DR. HOWARD TAYLOR, House Physician to the London Hospital, says that the attention of Dr. Sansom, of London, was drawn to the subject of Ehrlich's test for enteric fever, whilst attending the Congress of American Physicians and Surgeons at Washington last year. On his return to England he requested Dr. Taylor to investigate the test, which is as follows:

Ehrlich states that the urine of patients suffering from typhoid fever gives a reaction—with one of the aniline derivates—different from that of normal urine, or of the urine of patients suffering from other diseases. Ehrlich's tests are as follows: *A*, a saturated solution of sulphanilic acid in dilute (1 in 20) hydrochloric acid; *B*, a five per cent. solution of sodic nitrate in distilled water. (Both of these solutions must be fresh, especially the latter, which cannot be depended on for more than a week at the longest. When mixed, of course, a solution of sulphanilic acid containing free nitrous acid is produced, which is the actual test solution; but on account of the extreme instability of the latter the two solutions must be mixed fresh at each testing.) In using the test, about twenty-five parts of *A* are added to one part of *B*. Mix with this an equal bulk of urine to be examined, and render alkaline with strong ammonia.

With normal urine the change will only be a deepening of color into a sherry or vinegar-brown. In conditions of pyrexia other than typhoid fever the color also deepens, but when the test is applied to the urine of a patient suffering from enteric fever the color rapidly becomes red, the tint varying from ruby red to that of a deep port-wine color. On shaking the test tube a froth is produced which has a delicate pink color which is very characteristic.

From the result of Dr. Taylor's experiments with this test, which are given at length in the *Lancet* of May 4, 1889, he concludes that the absence of the reaction is practically a proof positive that the case is not one of enterica (provided that the disease has lasted for six days or more). Its presence suggests — but does not prove—that the case is one of typhoid; the probability being greater the deeper the tint produced. And as the other diseases in which it occurs least rarely are not those which most closely resemble typhoid fever, but the reverse, the significance of these exceptions is very greatly diminished.

Renal Surgery.—The progress of abdominal surgery has specially been marked of late by the increasing number of records of operations on the kidney. Since MR. THOMAS SMITH, twenty years ago, advocated the removal of a renal calculus by operation, and Prof. Simon proved, after making a series of experiments on dogs, that the removal of one kidney did not necessarily produce acute or chronic disease of its fellow, a whole series of operations on the kidney have come into vogue. These are nephrorrhaphy, or the sewing up of a floating kidney by its capsule to the parietes; nephrotomy, or incision into the kidney; nephro-lithotomy, or removal of a renal calculus by nephrotomy; and, lastly, nephrectomy, or removal of the kidney entire. Notwithstanding the truth of Simon's theories, and the encouraging results claimed by several surgeons, nephrectomy must still be considered a very serious undertaking.

There is a great difference of opinion amongst the few really experienced operators as to the right manner of performing nephrectomy. Some, like Mr. Lucas, advocate the lumbar, some, like Mr. Thornton, the abdominal incision. An instructive discussion between these authorities took place on the reading of Mr. Knowsley Thornton's paper on the subject, at the meeting of the Royal Medical and Chirurgical Society on April 9th. The choice of incision, however, is apparently of no essential import, depending rather on the previous experience of the surgeon in abdominal or lumbar sections, as they may conveniently be termed, for tumors, colotomy, etc. Far more important is the question of ascertaining the state of the opposite kidney. Mr. Lucas considered it necessary to estimate for some time the amount of urea excreted daily. If that were found to be less than half the normal quantity, then nephrectomy, he maintained, would be a very serious operation. To this reasonable observation, Mr. Thornton opposed an equally reasonable theory, which superficial thinkers are apt to overlook. If a large suppurating kidney, for example, be treated medically, not surgically, the labor thrown upon its fellow would be possibly greater than that entailed by the operation. Mr. Thornton also quoted one of his cases where both kidneys were diseased, yet when one containing twenty pints of pus was removed, the operation was borne very well.

To form anything like a correct estimate of the excreting power of the healthy organ in cases where the diseased kidney is not absolutely obstructed, is after all very difficult in actual practice. Dr. Tuchmann's ureter forceps, for temporarily blocking the orifice of one ureter for a time, may prove of service, but many find them difficult to apply. Catheterization of the ureter, practised by Newman, of Glasgow, and others, requires much special training.

Lastly, physicians, physiologists, and chemists have possibly more to discover as to the import of each constituent of the urine. As yet, much in respect to calculating the powers of a healthy kidney when its fellow is diseased, is theoretical or empirical. Lastly, renal surgery must for a long time remain in the hands of men well experienced in less severe or better understood operations performed in the same neighborhood.—*The British Med. Journal*, May 4, 1889.

Cancer of the Cervix Uteri.—Total extirpation is a difficult and serious operation. Supravaginal amputation of the cervix is somewhat less difficult, at least to operators not accustomed to surgical manipulations in the neighborhood of the female organs. The after-results of either operation when performed for cancer deserve close observation and accurate record. Should it be proved that cancer of the cervix naturally advances upward or recurs, after amputation of the affected part, in the uterus, the necessity for total extirpation would become evident. An

English authority, Dr. John Williams, maintains that the disease does not tend to spread upward from the cervix, but rather laterally toward the broad ligaments and vault of the vagina. Recurrence after amputation takes place, as a rule, in the neighboring connective tissue, and but rarely in the stump. Hence that authority's preference for supravaginal amputation of the cervix. The Germans are mostly opposed to this practice. Dr. Abel, after examing seven uteri extirpated by Prof. Landau for cancer of the cervix, found malignant degeneration of the endometrium in all. Dr. Fränkel examined six cancerous uteri, and found that, whilst the cervix was cancerous, the uterus was affected with glandular and interstitial endometritis. In other words, the endometrium was not cancerous. On the ground of the general pathological changes which he detected, he nevertheless advocated total extirpation of the uterus. His argument, in this respect, appears as weak as Dr. Abel's is strong. If the endometrium is merely inflamed, removal of the irritating cancerous deposits in the cervix ought to be, so far, sufficient. Dr. Saurenhaus, working in Prof. Olshausen's wards, also found that the changes in the endometrium, in cervical cancer, were non-malignant. Dr. Theim, of Kottbus, after practical observation, came to the same inconsistent conclusion as Dr. Fritsh. He discovered changes in the endometrium, which he held to be inflammatory, not malignant, yet insisted that total extirpation was demanded in cancer of the cervix whenever that severe proceeding was practically feasible.

Consistency in principles as applied to the results of observation, therefore, rests with Dr. Abel and Dr. John Williams; unfortunately, their conclusions are diametrically opposite. We need more observations on the condition of the endometrium in cancer of the cervix, and more records of after-histories where either of the abovementioned operations have been undertaken with success. —*The British Med. Journ.*, May 4, 1889.

Treatment of Erysipelas with Alcohol.—BEHREND states that he has found absolute alcohol to be an active poison to the micrococcus of erysipelas. He cites numerous cases where thorough washing of the affected parts, three or four times a day, with absolute alcohol, produced complete recovery in less than a week. The micrococci in every case disappeared almost immediately.—*Centralbl. für klin. Med.*, April 20, 1889.

Uralium, a New Hypnotic.—DR. G. POPPÉ, of Bologna, recently presented the Medico-chirurgical Society of that city with a monograph on uralium, a new hypnotic, being a composition of chloral and urethan. Poppé claims that it is both safe and efficient, and strongly recommends it in cases of insomnia of hysterical origin or cardiac trouble.—*Gaz. degli Ospitali*, Feb. 4, 1889.

Intra-pleural Injection of Naphthol in Purulent Pleuritis.—PROF. BOUCHARD has recently used intra-pleural injections of naphthol with marked success in two cases of severe purulent pleuritis, doing away with the necessity for operation for the empyema. He injected twice daily 30 to 60 ♏ of the following solution:

Naphthol	ʒjss.
Alcohol	f ʒj.
Distilled water . .	q. s. ad f ʒiijss.—M.

The quantity of naphthol injected was, therefore, two to four grains daily. As soon as the solution is injected the naphthol is freed, but is again partly dissolved in the exudation, and sterilizes the contents of the pleura. No unpleasant symptoms were observed to follow its use. —*Wiener med. Presse*, April 28, 1889.

Potatoes as a Substitute for Laparotomy.—The *Canadian Practitioner* of May 1, 1889, quotes the following from the *International Journal of Surgery*. At a meeting of the Imperial Society of Physicians in Vienna, DR. SALZER reported a communication from Dr. Cameron, of Glasgow, upon the "potato cure" first recommended by the Scotch observer. Dr. Cameron has used this plan of treatment in several cases of ingestion of large foreign bodies with gratifying success. Salzer has also had an opportunity to try the potato cure in the case of a boy who had swallowed a brass weight of twenty grammes. Potatoes were fed to the child cooked in a variety of manners, so as to encourage his appetite. He took them willingly. After five days the brass weight was compelled to retreat, overwhelmed by the constant accessions of reinforcements from above, and passed out, leaving the potatoes in possession of the field. In the same manner he treated the ingestion of a set of artificial teeth, while in another case a scarf-pin proved no match for its farinaceous antagonist. Dr. Salzer believes that this form of treatment will subserve a useful purpose in many cases in which, up to now, gastrotomy appeared to be the only form of relief available. He also advised the members to place no trust in sauer-kraut, which has been recommended for the same purpose. Dr. Hochenegg related the case of a boy who had swallowed a nail six ctm. long in 1884, and had been treated by gastrotomy. He had swallowed a similar nail two years later, when the potato cure had proved successful. Dr. Billroth spoke of the difficulty which exists in the removal of foreign bodies by laparotomy, and was strongly in favor of the potato cure.

Uncontrollable Vomiting of Pregnancy.—Few medical subjects can be of higher interest to the practitioner than this fortunately rare condition. DR. STOCKER, of Lucerne, has recently contributed an instructive case to the *Centralblatt für Gynäkologie*, No. 16, 1889. The patient married when 21 years of age, but her husband died a year afterward, and she had not then become pregnant. When 30 years old she married again; nine months later she was pregnant. At the fifth week of gestation, morning sickness set in. After the seventh week the vomiting became constant, and continued, when the patient was nourished by enemata alone. Emaciation progressed with rapidity. At the fourteenth week abortion was induced by means of laminaria tents, but great difficulty was experienced in getting the tents through the os internum. Recovery was rapid. Next year the patient again became pregnant. The vomiting began at the fourth week. At the twelfth week, induction of abortion was attempted, but the same difficulty was experienced in passing tents beyond the internal os. The ovum was ultimately brought away by intra-uterine injections of hot water. The vomiting then ceased. About a year and a half later the third pregnancy began. In the fifth week the uncontrollable vomiting set in. Copeman's treatment (dilatation of the whole cervical canal), caus-

tics applied to the os, and the internal administration of bromine and cocaine all proved unavailing. Induction of abortion was, therefore, attempted by intra-uterine injection. There was great resistance to the introduction of the catheter at the os internum. No pains set in, so next day the injection was repeated. The waters escaped, but no pains occurred. Then a laminaria tent was introduced. Directly the internal os was dilated the sickness ceased. The ovum and membranes were extracted manually. No albuminuria nor other evidence of visceral disease existed in this case. An exhaustive clinical and scientific monograph on the "Uncontrollable Vomiting of Pregnancy," by Dr. Graily Hewitt, is to be found in the twenty-sixth volume of the *Transactions of the Obstetrical Society of London*. The discussion, by eminent obstetricians, is highly instructive.—*The British Med. Journal*, May 4, 1889.

Influence of Massage upon the Secretion of Urine.—Dr. A. Bum (*Centralbl. für Chir.*, April 27, 1889) has been recently investigating the influence of massage upon the secretion of urine, and for this purpose has subjected a large number of dogs to vigorous treatments of massage. These novel experiments have showed him, however, that massage of the lower, or rather hind, extremities, materially increased the secretion of urine. This occurred in every case. Bum explains this action by the influence of massage upon the venous circulation. He confidently states that this method of treatment will undoubtedly become a valuable therapeutic agent.

The Antiseptic Properties of Sulphuric Acid Gas.—Drs. Dubief and J. Bruhl have recently conducted a series of investigations regarding the germicide properties of certain gases, especially of sulphuric acid gas. They have come to the following conclusions:

1. Sulphuric acid gas kills all germs with which it comes in contact in the air.
2. The action of the gas is the same when saturated with steam.
3. Sulphuric acid is a powerful antiseptic.
4. The dry fumes are quicker in action than the aqueous vapors of the gas.—*Gaz. hebd. de Méd. et de Chir.*, April 26, 1889.

Dangers of Chloroform in Laparotomy.—Professor Zweifel, of Berlin, has remarked several times that pneumonia has occurred after laparotomy has been performed under chloroform, either at night or on dark days when gas had to be used. In some cases, which were done in a small, badly ventilated room, where a good many bystanders were present, and two or three Argand gas-burners were in use, a peculiar cloud of partly decomposed chloroform vapor was very noticeable, not only to the eye, but by the effects produced on the respiratory organs of the operator and his assistants. When ether was used instead of chloroform these effects were not observed. Pending the establishment of the electric light, Professor Zweifel commences with a mixture of alcohol, chloroform, and ether alone, the patient being put under the influence of this in another room, ether being subsequently used during the operation.—*Lancet*, May 4, 1889.

The Local Treatment of Diphtheria.—The question of a purely local treatment of diphtheria has been agitating the minds of many practitioners of late. The existence of the bacillus of croup and diphtheria, first discovered by Hoeffler, is now accepted by the great majority of physicians, and the existence of such a germ immediately calls for its speedy extermination at the seat of its growth, both for curative as well as prophylactic reasons. With this method of treatment in view we are confronted by a long list of antiseptics of various merits. To facilitate a proper conception of their relative value, Dr. Kocii has prepared a table, showing the minimum strengths of solutions required to insure disinfection. These are quoted by Dr. Ferdinand Fruhwald in the *Wiener klinisch. Wochenschr.*, April 25, 1889.

	Marked decrease of the growth of the bacillus occurs in a solution of:	Total arrest of the growth of the bacillus occurs in a solution of:
Bichloride of mercury	1 to 1,160,000	1 to 300,000
Oil of mustard	1 to 330,000	1 to 33,000
Allyl alcohol	1 to 167,000	
Arsenite of potassium	1 to 100,000	1 to 10,000
Thymol	1 to 80,000	
Oil of turpentine	1 to 75,000	
Hydrocyanic acid	1 to 40,000	1 to 8000
Oil of peppermint	1 to 33,000	
Oil of cloves	1 to 5000	
Green or soft soap	1 to 5000	1 to 1000
Iodine	1 to 5000	
Hydrochloric acid	1 to 2500	1 to 1700
Boric acid	1 to 1250	1 to 800
Permanganate of potash	1 to 1400	
Salicylic acid	1 to 3300	1 to 1500
Benzoic acid	1 to 2000	
Carbolic acid	1 to 1250	1 to 850
Camphor	1 to 2500	over 1 to 2500
Quinine	1 to 830	1 to 625
Alcohol	1 to 100	1 to 125
Salt	1 to 64	

Many of the above antiseptics are very slow in action, and many are unfitted for such uses as spraying the mouth and throat, and would not, therefore, be of practical value in the local treatment of diphtheria. Our reader will, therefore, be able to gain more from the following table, which was compiled by Dr. Miller, of Berlin.

Antiseptic.	Concentration.	Time necessary for sterilization of mouth and throat.
Salicylic acid	1 to 100	¼ minute.
Benzoic acid	1 to 100	¼ "
Salicylic acid	1 to 200	½ "
Bichloride of mercury	1 to 2500	½ to ¾ "
Benzoic acid	1 to 200	1 to 2 minutes.
Thymol	1 to 1500	2 to 4 "
Bichloride of mercury	1 to 5000	2 to 5 "
Carbolic acid	1 to 100	10 to 15 "
Oil of peppermint		10 to 15 "
Oil of wintergreen		over 15 "
Lime water	no action.	

The majority of authorities seem to agree that the use of the spray, by means of an anatomizer, is preferable to the practice of "painting" the throat, as the latter method may frequently result in serious injury to the mucous membrane.

Precocious Menstruation: Amenorrhœa with Convulsions.—A case of remarkably precocious menstruation is reported

by DR. DIAMANT, of Vienna.[1] When a twelvemonth old, the child had cut all her milk teeth. When barely two years of age, the first period was observed. It lasted four days, and recurred with regularity till the child was six years old. At that age her breasts, loins, and pelvis were of the adult type: the axilla and pubes were thickly covered with hair. Suddenly the period ceased, and for six months after the child had completed her sixth year epileptiform convulsions came on during sleep, at every date when the catamenia should have appeared. The fits sometimes lasted three-quarters of an hour, and increased in number every month. They were continuing when the case was reported, the child being then 6½ years old.—*The British Med. Journal*, May 4, 1889.

Digestive Tablets.—*L'Abeille Médicale*, of April 27, 1889, gives the two following "antifermentative" formulas as prescribed by DR. DUJARDIN-BEAUMETZ:

I.

℞.—Salicylate of bismuth, Magnesia, Bicarbonate of soda . . . āā ʒijss.

Make into thirty powders or tablets.

II.

℞.—Salicylate of bismuth, Naphthol, Magnesia . . . āā ʒijss.

Make into thirty powders or tablets.

Dose: One tablet at breakfast and one at dinner. They are especially valuable in dilatation of the stomach caused by fermentation.

Menthol in the Treatment of Laryngeal Tuberculosis.—The *Prager med. Wochenschr.*, April 17, 1889, speaks of DR. A. J. OSSENDOWSKI'S treatment of laryngeal tuberculosis with ten to twenty per cent. solution of menthol. After carefully observing its action in a number of cases, the following conclusions were arrived at:

1. Menthol seems to act as a good anodyne in this disease.

2. It is of considerable value in the local treatment of laryngeal tuberculosis.

3. To begin with, a solution not stronger than ten per cent. should be used, which may be advantageously increased. Stronger solutions (forty to fifty per cent.) cause severe irritation.

Laxative Powder.—DR. DUJARDIN-BEAUMETZ recommends the following as a pleasant and reliable laxative:

℞.—Powdered senna pods (treated with alcohol), Sublimate of sulphur	āā ʒjss.
Powdered fennel, Powdered star aniseed	āā grs. 48.
Pulverized cream of tartar	grs. 31.
Powdered liquorice	ʒij.
Powdered sugar	ʒvjss.

Dose: One dessertspoonful of the powder in a half wineglassful of water at night.—*L'Abeille Médicale*, April 27, 1889.

[1] Internat. klin. Rundschau, 1888, No. 40.

Mercurial Vapor in Croup.—DR. ROTHE, of Altenburg, relates (*Memorabilien*, 6 Heft, 1889) two cases of apparently non-membranous croup in which, when the laryngeal stenosis became so great as to oblige him to propose tracheotomy, the inhalation of the vapor of calomel produced such a remarkable change for the better that he was able to dispense altogether with the operation. He rigged up a sort of tent over the child's head and vaporized thirty grains of calomel on a metal plate over a spirit-lamp. This produced a marked improvement in the breathing in a few minutes, and shortly afterward the child fell asleep bathed in perspiration. The inhalation was ordered to be repeated every two or three hours, but with smaller doses of calomel; also, whenever a severe attack of dyspnœa came on, an extra inhalation was given, and never failed to produce the desired effect. Though the inhalations were continued for a couple of days there was no salivation or diarrhœa, but the vapor set up some little irritation about the eyes, which made the little patients rather fractious; otherwise no unpleasant effects were produced.—*Lancet*, April 27, 1889.

Opium as a Hemostatic.—A case of severe bronchial hemorrhage came to the notice of DR. HUCHARD, which, in spite of most active treatment, had continued for some time. He used ergot, injections of ergotine, sulphate of quinine, ipecac, and other remedies without avail. Finally he tried injections of morphine, four or five times daily, in $\frac{1}{12}$ grain doses. The hemorrhages ceased entirely after the first day of treatment. Dr. Huchard has since tried the drug in cases of uterine hemorrhage and too copious menstruation, always with marked success.—*Journal de Méd. de Paris*, April 21, 1889.

Surgery of the Spinal Cord.—DR. LAMPIASI tells of the case of a man, aged twenty-eight, who was thrown from his horse, which fell on him. There was sensory and motor paralysis, with loss of control of the bladder and rectum. There was some prominence of the twelfth dorsal vertebra. An incision was made over the spinous process, and the bone was exposed. There was fracture of the left superior articular process and of the left transverse process of the twelfth vertebra, with luxation backward of the right upper articular process so as to override the lower articular facet of the vertebra above. The two superior processes of the twelfth vertebra were resected, and the dislocation reduced. There was no improvement in the symptoms, and death occurred six days after the operation. At the *post-mortem* examination there was found rupture of the lateral ligaments, detachment of the intervertebral disk of the twelfth vertebra, which remained adherent to the eleventh, and projected three-quarters of an inch into the spinal canal, where it pressed on the front part of the cord.—*The British Med. Journal*, May 4, 1889.

Local Application of Pepsin.—DR. H. B. DOUGLAS has found pepsin a most valuable application for indolent ulcers. It gives a healthy appearance to the sore, and promotes rapid healing. He uses it with lanolin in the following combination:

℞.—Pepsin	48 grains.
Lanolin	ʒjv.—M.

—*Revue de Thér. Méd.-chir.*, May 1, 1889.

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SO-CALLED WEIL'S DISEASE.

IN 1886 Prof. Weil, of Heidelberg, reported four cases which he regarded as examples of a hitherto unrecognized disease. The patients were all young, previously vigorous, healthy males, and the illness attacked them during the months of June and July. The symptoms from which Weil inferred the presence of a new disease were acute fever attended with grave nervous symptoms, such as cephalalgia, vertigo, disturbed sleep, delirium, and somnolence; with swelling of the spleen and liver, icterus, albuminuria, and signs of disordered digestion, such as anorexia, coated tongue, constipation, and diarrhœa. In from five to eight days the icterus, the swelling of the spleen and liver, and the albuminuria gradually disappeared, and the temperature became normal. The disease, however, was not at an end, for, in three of the four cases, after an afebrile interval of from one to seven days, the temperature again rose and another febrile attack of from five to six days' duration set in. The patients then entered upon a stage of protracted convalescence, and were not discharged from the hospital until from four to ten weeks after their admission.

These are the main symptomatic features of four cases ending in recovery, of which the imperfect study has led to the hasty assumption of a new disease. The report of a single case of the commonest disease is incomplete, for scientific purposes, unless details of a necropsy are given. How much more is this statement applicable to obscure cases of disease, and especially to those which are supposed to represent an affection that has escaped the observation of the entire medical world! The study of symptoms is of the utmost importance, but it must not be forgotten that, like the human countenance, they may vary within wide limits, while the pathological ego which they represent remains one and the same. Intercurrent and complicating affections, like conflicting emotions, may so distort the normal expression of a disease that its recognition is only possible to its most intimate acquaintances. From this point of view a change of type in disease would correspond to the permanent change of expression produced by age.

Such thoughts as these, when expressed, are at once recognized as familiar to all, but the tendency of the familiar to become contemptible is as strong as chemical affinity, and finds expression in one of the pithiest of our proverbs.

To return to the question of Weil's disease, so called. Is there such a disease? This question has been ably discussed by Ricklin, in four recent numbers of the *Gazette Médicale de Paris*, and by Fraenkel, in the *Deutsche medicinische Wochenschrift*, 1889, No. 9. In these two able contributions may be found a complete *résumé* of the literature of "Weil's disease."

The following reasons for regarding this affection as an independent one have been advanced. From acute yellow atrophy of the liver it is distinguished by the swelling of that viscus, by the high temperature, by the simultaneous swelling of the spleen, by the involvement of the kidneys, and by the absence of hemorrhage; and from catarrhal jaundice by the higher range of temperature and the implication of the spleen, liver, and kidneys. It resembles relapsing fever in many respects, especially the variety called by Griesinger bilious typhoid. This disease, however, never exists in sporadic form, and hence may be excluded even in the absence of the important negative evidence that would have been furnished by an examination of the blood for the spirillum of Obermeier. The concurrence of jaundice, apyretic intervals, and distinct relapses, suffices to exclude the view that the affection is an abortive typhoid complicated with jaundice. It is admitted, without further parley, that the affection belongs to none of these, nor to any similar, categories. In the absence of further information, we confess ourselves unable to classify the cases reported by Weil.

Happily this is forthcoming, and of the kind imperatively demanded. In the short time that has elapsed since Weil's publication, a number of similar cases have been reported, several of which were fatal and were examined post-mortem.

In 1887, under the title of "Acute Parenchymatosis," AUFRECHT reported two cases of acute fever with jaundice and albuminuria, which, after a rapid course, in which brain symptoms, such as somnolence and convulsions, were prominent, ended in death. In both, necropsies were held. In one the liver was small; in the other, enlarged. In the latter the cellular elements of the liver and kidney were filled with strongly refracting granules, which Aufrecht, without proving his supposition by appropriate staining methods, regarded as micrococci.

NAUWERCK examined, post-mortem, two cases of fatal febrile icterus, in one of which death occurred within forty-eight hours. In this rapidly fatal case the liver was not enlarged. In the intestine were small, superficial ulcerations and enlargement of solitary follicles and Peyer's patches. An intestinal mycosis was supposed to be the fundamental process, inasmuch as the mucous membrane contained small foci of cellular infiltration, in part necrotic, in the immediate neighborhood of which accumulations of bacilli were found. The parenchyma of the liver and kidneys presented a high degree of albuminous, fatty, and necrotic degeneration. In the second case, which lasted seventeen days, the intestine was perfectly sound, while the lesions of the liver and kidneys were identical with those of the first. Nauwerck concludes, from these examinations, that anatomical and etiological unity are both wanting in "Weil's disease."

The third case of this affection in which a necropsy was held was reported quite recently by BRODOWSKI and DUNIN. The patient, a male, thirty-six years of age, besides febrile icterus and swelling of the liver and spleen, presented a symptom that has been wanting in all the other cases reported, viz., swelling of all the superficial lymph-glands. They were tender on pressure and enlarged, some of them to the size of walnuts. On section, these, as well as the enlarged mesenteric and bronchial glands, were soft and of a reddish-gray color. In the liver gray spots and nodules could be seen with the naked eye, which corresponded to round-celled infiltrations of the acini and their neighborhood. The cells were in a well-marked state of cloudy swelling. Analogous appearances were observed in the kidneys, and the interstitial tissue of the lungs was infiltrated with cells. The spleen was five times the normal size. No definite conclusion could be drawn from the bacteriological investigation.

From the reports of these necropsies it is evident: 1. That the post-mortem appearances were, in no single case, identical with those of any other; and, 2. That the only lesion common to all the cases—the cloudy swelling of the liver and spleen, with small-celled infiltration of the connective-tissue of these glands—was in nowise typical. The same appearances are characteristic of a number of infectious diseases, such as scarlatina, diphtheria, typhoid, and especially septic infection.

The question next in natural order is whether any facts support the view that sepsis may give rise to the symptoms described by Weil, and the answer is most decidedly in the affirmative. Since 1876, FIEDLER has observed thirteen cases of febrile icterus, all of which recovered. Supposing the symptoms of Weil's cases to be typical of any morbid process, many of Fiedler's cases presented marked aberrations from this type. For instance, swelling of the spleen and liver and albuminuria were not always present, and in only two cases was there a distinct relapse. The only symptoms invariably present were fever, icterus, and pain in the calves, which latter Fiedler regards as pathognomonic. The most remarkable etiological fact in connection with these cases is that out of the twelve males among them, nine were butchers who were actively at work in the Dresden abattoir until the time of their seizure. Two others attributed their attack to sausages which they had eaten. Most of the cases, like those of Weil, occurred during summer.

The most remarkable case of this sort yet reported was observed by FRAENKEL, and the evidence it brings to the support of the septic theory of "Weil's disease" is of the strongest kind. The patient was a medical student who, while fencing, received a wound of the forehead. In addition, there was a slight excoriation in the right temporal region. The wound was dressed antiseptically and covered with a bandage, which, however, did not protect the excoriation. On his way home the patient wore a hat which had been kept in the dissecting-room. The wound was received on the third of August. On the fifth there was a chill followed by high fever, and on the seventh by an erysipelatous redness around the excoriated spot. On the tenth there was pronounced icterus, and, without going into further details, all

the symptoms of Weil's cases, including the apyretic interval, the relapse, and the protracted convalescence were well marked. The spirillum of Obermeier was sought for in vain.

Among the widely varying symptoms and post-mortem appearances of the numerous cases of "Weil's disease" now on record there is nothing distinctive of a hitherto unrecognized disease. On the other hand, there is strong evidence that some of them were cases of septic poisoning. In Fraenkel's case, which corresponded in all respects with those described by Weil, the point of septic infection was a wound of the head; and in Fiedler's cases, at least in the nine butchers, the infection may have entered the system in a similar manner, through cuts and abrasions too slight to attract attention, or through the ingestion of decaying meat.

The designation of such manifestations of sepsis as "Weil's disease," while it has served the valuable purpose of directing more special attention to them, is a misnomer. Much more appropriate is the term septic or infectious icterus, proposed by Fraenkel.

HYSTERIONICA BAYLAHUEN.

This plant, which is a native of Chili, has been brought forward in the February 28th number of the *Bulletin Général de Thérapeutique* by Dr. Baillé, and also before him by Cervello, of Valparaiso, as a remedy of very considerable value in gastro-intestinal troubles, such as dysentery, colitis, and flatulence from intestinal dyspepsia. The drug is to be used in the form of an infusion made by adding one part of the plant to five ounces of water, or in the form of the tincture prepared by the maceration of three and a quarter ounces of hysterionica in sixteen ounces of ninety per cent. alcohol during ten days. After this the liquid is to be decanted, the tincture being of an amber color and having an odor of the plant. The dose is fifteen to thirty-five drops.

The conclusions reached by Baillé as to the drug are as follows, after having studied it in each portion of the body *seriatim*. It is an excellent remedy for diarrhœa and acts very well in dysentery of the acute and chronic type and bids fair to replace the balsams in the treatment of maladies of the respiratory passages.

The rather curious statement is made that the tincture will not produce constipation.

In genito-urinary troubles hysterionica is of great value, modifying the secretion of the urine and diminishing the bad odors. It can also be used in collodion as a dressing for ulcers, and seems under these circumstances to act very much like the tincture of benzoin.

Tuberculosis is the most generally diffused of human diseases, and therefore all studies relating to its causation and prevention are of the highest interest. The discovery, in 1882, by Koch, of the bacillus of tubercle, and the causative relation it bears to tuberculosis, have received wide-spread acceptance, and the very recent researches of his pupil, Cornet, upon the dissemination of tubercle bacilli outside of the body have given us information of great use in the prophylaxis of the disease. The Prussian Government, which is never slow to render available the latest researches of science for the benefit of its people, has embodied the practical outcome of the investigations of Cornet in a series of regulations for the prevention of the spread of phthisis, which have been promulgated in an official order which will be found on page 571 of this number of The News.

Now that the suspension treatment of disease of the spinal cord has come into general use, the danger of its self-application, when alone, should be carefully impressed upon the patient, and the moral can be well pointed by the death of Dr. Vincent, of the Clifton Springs Sanitarium, who was found a few days ago hanging lifeless from the tripod. The indications pointed to the fact that he was experimenting with the tripod with the view of noting the effects of suspension in his own case, and that by some accident he lost control of the rope, and at the same time the chin strap slipped over his mouth and nostrils and suffocated him. According to *The World*, Dr. Sayre had a similar experience several years ago, in the case of a young lady who is supposed to have fainted while in the tripod, and to have been suffocated in a like way.

We are surprised to read in our usually accurate contemporary, *The Boston Medical and Surgical Journal*, that Dr. Hunter McGuire, of Richmond, Va., had been elected to fill the vacancy in the Chair of Surgery at the Jefferson Medical College, of Philadelphia. The statement is the more curious as Dr. McGuire was not in any way a candidate for the position.

According to the *Boston Medical and Surgical Journal*, the Iowa State Board of Health has decided

that Iowa medical colleges, after 1891, shall be required to give a four years' course to secure their graduates admission to practise in the State.

THE American Laryngological Association will hold its eleventh annual Congress at the Arlington Hotel, Washington, on Thursday, Friday, and Saturday of next week, under the presidency of Dr. E. Carroll Morgan, of Washington. We present the programme in full in another column. After adjournment on Saturday, there will be an excursion to Mount Vernon.

THE Pennsylvania State Medical Society holds its thirty-seventh annual session at Pittsburg, on June 4th, 5th, and 6th, under the presidency of Dr. J. B. Murdock, of Pittsburg. The Address in Medicine will be delivered by Dr. J. C. Wilson, of Philadelphia; in Hygiene, by Dr. T. J. Mays, of Philadelphia; in Laryngology, by Dr. W. H. Daly, of Pittsburg; in Surgery, by Dr. J. B. Roberts, of Philadelphia; in Obstetrics, by Dr. Frances N. Baker, of Delaware County; and in Mental Disorders, by Dr. Alice Bennett, of Norristown.

THE Ontario Medical Association will meet at Toronto, on June 5th and 6th.

THE latest mails from Colombo, Ceylon, says the London *Medical Press*, May 1, 1889, bring accounts of a serious outbreak of cholera in the island. Upward of sixty fatal cases had occurred in one township, and the people were in a state of panic.

SOCIETY PROCEEDINGS.

THE AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in the Army Medical Museum, Washington, May 14, 15, and 16, 1889.

TUESDAY, MAY 14TH—MORNING SESSION.

The Association was called to order at 11 A.M., by THE PRESIDENT, DR. DAVID W. CHEEVER, of Boston, who then delivered his

ANNUAL ADDRESS.

He believed that we are warranted in saying that the future of surgery is without limit. He deduced this conclusion first from considering what the mind of man has already done; second, from the future possibilities of fields hitherto unknown and unexplored, but now opening up to science, there can be but two limitations —either in the mind of man, or in the subject.

In estimating, then, the limitations of surgery, we find none, except they be set by ourselves. How should they be set? By conservative judgment opposed to rashness. In the list of modern and useful operations as distinguished from those barely justifiable, are the following:

1. To remove growths or foreign bodies from the cavities of the body: Opening the brain, opening the spinal cord; displacement of the upper jaw or of the nose for naso-pharyngeal polypi; cutting into the pharynx from outside the neck, to remove tumors of the tonsil; œsophagotomy for foreign bodies; thyrotomy for growths; gastrotomy for foreign bodies; opening the gall-bladder for the removal of stones; opening the pelvis of the kidney for calculi; supra-pubic cystotomy for calculi and tumors of the bladder; ovariotomy; removal of the diseased uterus or its appendages; laparotomy for gunshot wounds; and for extra-uterine fœtation; excision of the lower part of the rectum for growths.

2. To reach and evacuate inflammatory products: Opening the chest and resecting the ribs for empyema; opening the abdomen for appendicitis, or for chronic peritonitis; opening and drainage of pelvic abscesses; of abscess of the vertebræ; opening of deep abscess of the neck; evacuation and draining abscesses of joints; peri-nephritic abscess and removal of one kidney.

3. To relieve obstruction: Intubation and tracheotomy; gastrostomy, and enterostomy; colotomy; perineal section; herniotomy.

4. To restore continuity: Resection and suture of bowel; resection and union of bone; resection and reunion of nerves; nerve-grafting; reunion of tendons and of muscles.

5. Unclassified procedures: Plastic and osteo-plastic surgery; modifications of orthopedics, including bone sections and excisions; litholapaxy; reduction of dislocation of the hip and of the shoulder by applied anatomy; endoscopy; rhinoscopy and removal of turbinated outgrowths; pathology and removal of adenoids; aseptic wiring of fractures; local anæsthesia in setting fractures; closing of skull wounds by the insertion of buttons of bone.

6. Operations as yet *sub judice* or on trial: Resection of pylorus; resection of cancerous intestine or omentum; removal of the spleen; of large bronchoceles; of the larynx; the pancreas; the prostate gland; the normal ovary; fixation of the kidney, or of the uterus; puncture of the pericardium; opening gangrenous abscesses in the lung; tapping the ventricles of the brain.

Rash statements are to be discounted; rash operations are to be discouraged. The wisdom of our earliest Greek master in analyzing the imperfections of our art holds true to-day: "Ars longa, vita brevis est; occasis fugax, experimentia fallax; judicium difficile." Yet with Bacon came the new light of experiment. In his immortal words: "Recte veritas temporis filia dicitur, non auctoritas." Lean not on authority; the test of truth is time.

MISCELLANEOUS BUSINESS.

The death of Dr. S. W. Gross, of Philadelphia, was reported, and Drs. D. W. Yandell, J. Ewing Mears, and P. S. Conner were appointed a committee to prepare appropriate resolutions.

The Committee on Nominations was announced as consisting of Drs. D. Hayes Agnew, William T. Briggs, Hunter McGuire, John S. Billings, and J. R. Weist.

On motion of Dr. L. McLane Tiffany, the Secretary was requested to wire to Dr. T. G. Richardson, of New Orleans, the senior vice-president, who was prevented by illness from attending the meeting, the regrets of the Association at his absence.

DR. D. W. CHEEVER, of Boston, then reported a case of

SARCOMA OF THE TONSIL; EXCISION.

The patient, a male, æt. fifty-seven, single, for one year had to breathe through the mouth on account of enlargement of the left tonsil. No pain was experienced until November 1, 1888, when he "caught cold" and the tonsil swelled considerably, and became sore and tender, and discharged spontaneously a few days later. At the same time he noticed some enlarged glands in the left neck. The glands gradually increased in size. The tonsil caused no more pain, but there was an increasing sense of fulness behind it, increasing dysphagia, and difficulty in articulation. There was loss of appetite and weight. When he came under observation January 14, 1889, the left tonsil was found to project nearly to the uvula and was as as large as a pullet's egg. There were two glands in the left neck each as large as a horse-chestnut.

The operation was performed January 17, 1889, ether being given, and the patient being in the sitting posture. A gland in front and one behind the sterno-cleido-mastoid muscle were removed. The first incision was semi-lunar, concave upward, marking the boundaries of the digastric triangle. A second incision over the lower jaw at right angles to the middle of the first incision was then made. The mylo-hyoid muscle was now divided and the other tissues pushed to one side. The lower jaw was then sawed in two in front of the masseter muscle. The tumor was pressed out by finger in the mouth, and was found to be covered with a delicate capsule. On puncture a soft material exuded. The tumor and capsule were removed without great difficulty. There was no hemorrhage, and the facial artery and external jugular veins were the only vessels ligatured. The wound in the pharynx was not sewed; the jaw was wired, the external wound in the skin was partially approximated and washed with two per cent. boracic acid solution and dressed with boracic gauze. The wound was dressed daily. Healing took place rapidly with no unfavorable symptoms. On the thirtieth day the wire was removed and the jaw found to be firmly united. Microscopical examination showed the growth to be round-cell sarcoma.

April 27, a second operation was performed for a tumor on the same side of the neck. The throat, however, remains healthy. A large glandular mass was removed from the anterior carotid triangle. This also proved to be a round-cell sarcoma.

DR. D. HAYES AGNEW, of Philadelphia, said that there are several points of interest in connection with sarcoma of the tonsil. Including the case of Dr. Cheever, he thought there are only ten or eleven recorded. A second point is the fact of constant recurrence. He believed that there is only one case on record where return has not taken place. In that case the thermo-cautery was employed. Various operations have been employed—enucleation, the écraseur, the galvano-cautery, the thermo-cautery, and the external method first used by Dr. Cheever. The operation, when undertaken, should be done simply with the view of palliation. The operation from without is confessedly a difficult operation, and while in the hands of experts it probably affords the best opportunity for the removal of all diseased structure, for the general operator some other method would no doubt be better. He had been much struck with the exposure gained by simply slitting the cheek in operations on tumors far back in the throat—as far back as the soft palate. This would probably give as good a chance of success as any other plan of procedure.

DR. A. VANDER VEER, of Albany, said that the first well-marked case of sarcoma of the tonsil that had come under his observation was in a man aged seventy-two years. The tumor had been discovered four months before he saw him. There was a full, round tumor of the tonsil, interfering seriously with deglutition and somewhat with breathing. The patient selected enucleation in preference to the operation from the outside. His intention was to remove all that he could with the tonsillotome, cutting from behind forward, then enucleate with a blunt instrument and use the thermo-cautery. After cutting through the capsule the tonsillotome slipped behind the tonsil and it was completely enucleated. He did not apply the thermo-cautery. The patient had no return of the disease for eight months. The growth then reappeared and rapidly increased in size. Two months later the patient was taken with pneumonia and died in a few days.

DR. P. S. CONNER, of Cincinnati, thought that the statements in reference to the infrequency of sarcoma of the tonsil are hardly correct. He knew of several unreported cases, two of which came under his own observation. One was in a woman aged twenty-six years. The disease was so far advanced that he thought no operation justifiable, and she died a few days later. The second case was a man aged forty years. The tumor was as large as the fist. He operated by slitting the cheek and was able to separate the tumor readily from the capsule with the finger. The operation was done in June. In July he was apparently in excellent condition. The disease began to recur in the latter part of August and grew rapidly, and in October he was found dead in bed, supposed to have committed suicide.

DR. M. H. RICHARDSON, of Boston, some time ago removed a sarcoma of the tonsil by external incision. The enucleation was accomplished with ease, and without opening the pharynx. A year after the operation there had been no return of the disease. This was two years ago, and, as far as he knew, the patient is still living.

DR. CHEEVER said that the operation through the cheek is probably easier and more desirable in some cases, but the operation from the outside leaves less paralysis and less scar. The great dread of these operations was, formerly, the danger of opening the upper part of the alimentary canal and establishing a fistula. This has now been proven to be without foundation. He was inclined to think that the use of sutures in the pharynx or œsophagus would be more dangerous than their omission. The object of these operations is to permit the patients to die easier. It is more comfortable to die with an external tumor than with one pressing upon the larynx or throat, causing starvation or choking.

AFTERNOON SESSION.

DR. CLAUDIUS H. MASTIN, of Mobile, read a paper entitled

HERNIA: A COMPARISON OF THE VARIOUS METHODS ADOPTED FOR ITS RADICAL CURE.

Reference was first made to the great frequency of this condition. The census reports of 1880 show that of the total number of deaths, one in every six hundred was due to hernia, and out of twelve hundred and thirty-six deaths from hernia, one hundred and forty-one occurred in children under one year of age.

The paper concluded with the following remarks:

The ligature of the sac at its neck, with suture of the pillars, of canal and ring, may be considered an established surgical procedure. Still, being a comparatively new operation, a discussion of its merits will be of practical value in leading to further improvements, and with them, permanent success of the operation. With the present lights before us, the most important point in the operation appears to be closing of the neck of the sac as high up as possible, so as effectually to seal up the opening into the abdominal cavity. To do this completely it is necessary that the sac should be carefully separated from the adjacent tissues, and this is not always an easy matter, since oftentimes the true sac is obliterated and a new sac formed in the fibrous tissue, with the vascular and nervous distribution blended in such a manner as to render the dissection most difficult if not impossible. In such a case Macewen's operation could not be performed and it would be impossible to twist the sac as recommended by Mr. Ball. This objection does not obtain in crural and umbilical herniæ; still, since inguinal is the most frequent of the herniæ, it is of importance in them. In the congenital cases it is much easier to separate the sac and hence more possible to do a complete operation; but since in young children, the truss properly applied and long continued until the abdominal parietes have been so developed as to increase the obliquity of the canal, will, in most instances, produce a permanent cure, all operative procedures in children should be considered unwarrantable. In these cases, however, where an imprisoned testicle complicates the condition, the operation is unquestionably proper and the removal of the testicle justifiable, and for the simple reason that the presence of the gland in the canal predisposes to the descent of the hernia.

Since the main point in the success of the operation appears to have been the proper disposal of the sac, it is not astonishing that operators who have given it their attention should have adopted diverse methods, each one of which has the same end in view. Whilst Ball twists it, Macewen tucks it up; Hardee insists upon the importance of inclosing the transversalis fascia with the sac in the ligature; J. D. Bryant splits the pillars on either side and weaves in the sac; Annandale opens the canal, ties the sac, cuts it away and stitches the opening; on the other hand, Stokes opens the sac, and then, stitching the neck, the canal, and the pillars together, he leaves the sac in position; Banks opens the sac, ligates the neck, cuts away the fundus and sutures the pillars; Alexander, of Liverpool, opens the canal, ligates the sac flush with the peritoneum internally, then divides the neck below the ligature, leaving the sac in the canal without suturing the ring; MacCormac advocates this plan, while Buchanan cuts down to the sac, slits it up longitudinally on each side of the cord, divides the front part horizontally, rolls up the upper part, with which he plugs the internal ring, and turns down the lower half to form the tunica vaginalis.

From a comparison of all the methods, it is apparent that no fixed rule of procedure is established, and although the radical operation is a marked improvement in the treatment of hernia, whether free or strangulated, we cannot consider it perfected, because the methods hitherto resorted to have not proved radical in results. The operation is ideally correct, but the question arises, whether, with the uncertainty of success, the risk justifies the operation, especially so if the circumstances of the individual are such that he can content himself with the use of a properly adjusted truss.

DR. M. H. RICHARDSON said that his experience with the operation for the radical cure of hernia had been small. Sufficient time has not elapsed to permit us to say what the ultimate result will be. His preference has been for the invagination of the sac as proposed by Macewen. He did not advocate the operation in trivial cases of hernia. Here he believed that the application of a well-fitting truss is the more conservative and better plan.

DR. D. HAYES AGNEW thought that we had yet to speak with a good deal of reserve as to which is the most successful operation. Sufficient time has not elapsed to enable us to speak positively upon this subject. The operation which seemed to him most applicable is that in which the sac is ligated, pushed into the internal ring, stitched there, and transverse sutures passed across the canal. He thought that the omentum will constitute an important element in the radical cure of hernia. He believed that in all cases of strangulated hernia we are justified in attempting the radical cure. The same is true in those cases of hernia which cannot be controlled by a truss, leaving the patient exposed to great risk.

DR. W. W. DAWSON, of Cincinnati, thought that in cases in which life is not in jeopardy we should approach the operation with a great deal of consideration He had seen very different results from the same operation performed with equal care in cases apparently similar. Where life is in danger, duty impels us to operate, but where the question is one of æsthetics or abridged usefulness, the operation should be approached cautiously.

DR. L. MCLANE TIFFANY, of Baltimore, said that his operations for radical cure in cases of strangulated hernia were more successful than formerly, and attributed this to the fact that he operated now in a more cleanly manner. He thought that no operation for strangulated hernia is complete unless an attempt at radical cure is made. When the hernia is not strangulated, the question arises as to the kind of hernia, the inconvenience that it causes, and the circumstances of the individual. He did not believe that the operation *per se* is likely to be followed by much trouble. The method to be employed must be determined by the peculiarities of the case.

In regard to children, he thought that in congenital hernia, especially where it is probable that the child will have to work for its living, it is the duty of the surgeon to operate. Here it is not necessary to open the peritoneum. A ligature is thrown around the sac above and another lower down, and the intervening portion excised,

forming a tunica vaginalis below and a peritoneal sac above.

DR. D. U. YANDELL, of Louisville, believed that in strangulated hernia the surgeon should attempt the radical cure. This had been his practice and he had used various methods. It is difficult for any one man to decide which is the best operation, but in the course of ten years we shall be able to arrive at some opinion.

DR. J. FORD THOMPSON, of Washington, thought that there is very little difference in the operations. The main point is to get rid of the sac. He thought that suture of the pillars is useless. The operation that he has employed is practically that of McBurney. In strangulated hernia it seemed to him that there must be danger in inverting the sac, as in Macewen's operation. He had seen many cases of hernia in children, but had never been able to adopt the view of Dr. Tiffany. As a rule, if we can keep the intestine reduced, the hernia is cured in a comparatively short time. In some cases of large hernia in children the radical operation is probably justifiable.

DR. W. W. KEEN, of Philadelphia, said that doubtless all agreed that in strangulated hernia no operation is complete without an attempt at radical cure. It was also agreed that in those cases where the hernia is not controlled by a truss and the patient is unable to labor, radical operation is advisable. The tendency at the present time is to extend the limits of the operation beyond these two classes. The presence of hernia is always attended with risk; hence, the tendency at present is to operate on a larger number of cases. In children, if the retentive measures after a thorough trial for a few years fail to effect a cure, he should be inclined to operate.

In very large hernia he should not be inclined to use Macewen's method. The life of the sac is imperilled by separating it. In large hernia a certain amount of preparatory treatment is desirable to accustom the abdominal cavity to the presence of the intestine and thus prevent undue pressure upon the diaphragm and strain upon the sutures. In the more ordinary cases he thought that the operation of McBurney is the best. He should place the operations in the following order: McBurney's, Macewen's, and Ball's.

DR. C. H. MASTIN said that the object of his paper was to elicit discussion as to the best method of operating. He had performed 34 operations for hernia, with 3 deaths. Two of these may be excluded, as the patients were *in extremis* at the time of the operation. This leaves 32 cases with 1 death. Of this number there had been 8 radical cures. One of these cases he had watched for seventeen years. The method employed was after the sac was opened to pass a deep pin through the pillars, with an ordinary twisted suture over it, close the incision, and place the leg on a double-inclined plane. Thirty-one cases have recovered with primary union. He believed that the cure is produced by the dense cicatricial tissue formed in the canal.

DR. J. R. WEIST, of Richmond, Md., had operated on strangulated hernia 41 times. In 30 cases he had attempted to make a radical cure, using a variety of methods. In only 4 cases had he succeeded in keeping the hernia in. A number had remained well for six months to two years, and then the hernia had reappeared as bad as ever.

DR. M. H. RICHARDSON, of Boston, then read a paper on

THE SURGICAL TREATMENT OF GANGRENOUS HERNIA.

The principal question discussed was the relative advantage of immediate excision and suture of the bowel, and the formation of an artificial anus with subsequent closure. The views of various authorities were first quoted. The author then briefly reported the cases coming under his own observation.

Case I.—A young woman with right femoral hernia, strangulated for one week. Bowel was found gangrenous and excised. Death from shock the next day.

Case II.—Woman, æt. sixty-five years; left inginual hernia. On opening the sac the bowel was found strangulated and dark in color. The hernia was reduced, but the symptoms of obstruction continued, and five days later the sac was opened and the intestine found strangulated by a band within the ring. The bowel was drawn out, the strangulated portion excised, and the ends sutured. The patient died of shock.

Case III.—Woman, æt. forty-two years; had been treated by Christian scientists for five days. There was a large umbilical hernia with gangrenous intestine. The sac was filled with fecal matter. The constriction was found, and the bowel drawn out and excised beyond the constriction, and the ends united. This patient recovered perfectly and has remained well.

Case IV.—A woman with enormous umbilical hernia, with strangulation and gangrene. The fecal abscess opened by natural processes, and the woman has been in perfect health since, with the exception of the artificial anus. This will be operated on next week.

In the two cases of excision the time required for the passage of the sutures was twenty minutes; the whole operation did not exceed one hour. The longer the operation the more are the chances reduced.

Reference was then made to the use of the bone-plates of Senn and the catgut rings of Abbe. These devices may do more in these cases than anything else. Every case must be decided on its merits. The danger to life of resection in suitable cases is probably not greater than the danger of artificial anus with the dangers attending the subsequent closure of the same. The danger of the latter operation is especially great when the opening is near the stomach. Artificial anus is also objectionable on account of the excoriation of the skin which attends it, and also the risk of giving way of the sutures.

The author concluded as follows: It seems to be the general opinion of surgeons everywhere that under some circumstances excision and sutures are justifiable. It seemed to him that the primary operation should only be done where all the conditions are favorable. It is preëminently a hospital operation. Every appliance and preparation should be ready for its most perfect performance. It is not an operation to be recommended to the general practitioner or to the unqualified operator. It depends for success more often upon rapid and skilful execution than almost any other operation.

There is no doubt that in some cases this procedure is imperative, where the part necrosed is too high up for intestinal nutrition to be maintained. The difficulty, of course, is to recognize this state of things. Even when it can be demonstrated that the jejunum is gangrenous,

excision is not justifiable unless the patient's condition offers some hope, and there is a chance that the relief of the symptoms of obstruction may be followed by sufficient improvement to make a secondary operation possible.

DR. D. HAYES AGNEW said that his experience was too limited to enable him to say much upon this subject. He recalled three cases of gangrenous hernia. One was a case of inguinal hernia, in which he excised a portion of the bowel. The patient recovered from the immediate effects of the operation and passed out of his hands. Some months afterward he was advised by another surgeon to apply a compress to the external opening so as to compel nature to establish a communication between the two portions of the bowel. He did so with fatal results. The second case was one of femoral hernia which had lasted six or seven days. It was laid open and the patient recovered. As the granulations filled the opening communication took place between the two portions of bowel. The third case was one of umbilical hernia. He opened the sac, excised ten inches of intestine and carefully stiched the ends. The patient died of hemorrhage at the end of two days. It occurred to him that it would be wise in such a case to stitch the intestine to the skin, and at a subsequent period do the operation of Dr. Abbe.

DR. W. T. BRIGGS, of Nashville, said that although he had seen many cases of strangulated hernia, he had met with but three instances of gangrenous intestine. In the first case he opened the abscess and the fecal contents escaped. The patient lived some time, but died of inanition. In the second case he attached the bowel to surrounding parts and made an opening in it. The patient died in twenty-four hours. The third case he left entirely to nature and the patient recovered with an artificial anus.

DR. P. S. CONNER, of Cincinnati, had had three cases of gangrenous hernia, and had seen a fourth in the practice of Dr. Dandridge. The operation of intestinal anastomosis is valuable. It can be performed rapidly; it is simple, and establishes the continuity of the intestinal tract more perfectly than any other operation that has been suggested.

DR. W. F. PECK, of Davenport, from his experience, thought that great benefit in the way of prevention would result from educating the subjects of this trouble in regard to the dangers of hernia and the way of reduction.

DR. J. EWING MEARS, of Philadelphia, had had two cases: one of umbilical hernia, in which he made an artificial anus; the other of femoral hernia, where he performed resection, and returned the intestine to the abdomen. Both resulted fatally inside of forty-eight hours. A surgeon of Vienna has suggested that in these cases the gangrenous intestine be withdrawn from the abdomen and held in place outside by a tampon of iodoform gauze. In this way the intestine can be kept under observation and treated as seems best.

DR. W. W. KEEN thought that the introduction of the method of intestinal anastomosis by the bone plates of Senn or the catgut rings of Abbe is a great advance over former methods. The mortality following this method is greatly less than that following reunion of the ends of the bowel.

DR. T. A. MCGRAW, of Detroit, had heard nothing in regard to the pathological condition of the bowel above the seat of stricture. In some cases the bowel is healthy immediately above the point of strangulation, while in others the inflammatory process extends six to ten inches above the point of constriction. This must make a great difference as regards the results of operation.

DR. A. VANDER VEER eleven years ago saw a case of gangrenous inguinal hernia, but the condition was so bad that nothing was done. The patient died a few hours later. Two years ago he saw a similar case, except that the patient was younger and the collapse not so great. He opened freely, and left it to nature. The man recovered with an artificial anus.

DR. H. H. MUDD, of St. Louis, thought that gangrenous hernia is not so rare as seems to be the general impression. He could recall at least seven cases, three of which occurred more then four years ago, and all died. During the last four years he had operated on four cases, excising a portion of the bowel, with recovery in one case.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 16, 1889.

ANDREW H. SMITH, M.D., VICE-PRESIDENT, IN THE CHAIR.

DR. O. D. POMEROY, Chairman of the Section on Ophthalmology and Otology, on behalf of his Section presented to the Academy a fine

PORTRAIT OF THE LATE CORNELIUS R. AGNEW,

with a few eulogistic remarks which were seconded by Drs. Fordyce Baker, A. Jacobi, and H. D. Noyes.

DR. W. GILMAN THOMPSON then read a paper on

THE THERAPEUTIC VALUE OF OXYGEN, WITH EXHIBITION OF ANIMALS UNDER HIGH PRESSURE OF OXYGEN.

He said he had been impressed by the fact that while some observers claimed the most brilliant therapeutical results from the use of this agent, others hold that it was but of little, if any, practical value, and still others used it in such a vague way that no reliance could be placed upon the results obtained. As was well known, the ordinary pressure of the atmosphere was fifteen pounds to the square inch. Of this amount, three pounds of pressure was exerted by the oxygen, and twelve pounds by the nitrogen. The first question that arose was, Does an increased pressure really cause more oxygen to be absorbed? Under any circumstances the hemoglobin of the blood could take up but two and a half per cent. more of oxygen, and it was also a fact that it could not enter the plasma to any extent.

In most of the older text-books it was stated that animals could not live in pure oxygen, the system being burned up as it were by the increased tissue-changes excited by it. This idea, however, was an entire mistake, as was conclusively demonstrated by Dr. Andrew H. Smith in the series of experiments made by him in 1869 and 1870. Having referred to some of the symptoms produced in the human subject by the inhalation of oxygen, he said that very little additional oxygen could be made to enter the system by any amount of pressure short of that which would produce injurious effects.

He then exhibited the apparatus which he had had

constructed for the purpose of exposing animals to high pressures of oxygen. It consisted of a strong iron drum or chamber, with glass-covered openings at each end, in which the animal to be experimented upon was to be placed; and to this oxygen was supplied at any degree of pressure desired from a cylinder containing the gas, at a pressure of two hundred and twenty-five pounds to the square inch. Two animals, a monkey and a pigeon, which had been exposed for one hour to a pressure of thirty pounds to the square inch, oxygen, in addition to the ordinary pressure of the atmosphere, fifteen pounds to the square inch, were taken from the drum in an apparently perfectly normal condition.

Dr. Thompson next proceeded to make a detailed report of a number of experiments he had made upon animals which were in a normal condition at the time the experiments were commenced; the animals being dogs, cats, pigs, monkeys, guinea-pigs, pigeons, and alligators. It was found that all the animals could exist comfortably in the oxygen until a pressure exceeding three atmospheres was employed. The higher orders of animals were affected before the lower ones. As a rule, a decided fall of temperature, often amounting to from 4° to 6°, was observed; and only in cold-blooded animals was there any rise in temperature. This marked decrease in temperature he did not believe was to be attributed at all to the effect of the oxygen, but to the profound disturbances in the system caused by the high pressure employed. If, as was claimed by the older writers, a greatly increased tissue-metamorphosis was caused by oxygen, this would unquestionably be accompanied by an increase, and not a diminution, of the body temperature. In a paper read before the Royal Academy of Madrid, Valenzuela reported similar results. In animals subjected to oxygen in a pneumatic chamber under increased pressure, he found that the temperature was reduced several degrees, and rabbits in which septicæmia had been artificially produced, had the temperature reduced to normal.

In such of the animals as died as a result of subjection to high pressure of oxygen, or were killed after removal from such pressure in the pneumatic drum, Dr. Thompson found pulmonary engorgement and dilatation of the right heart. The convulsions which usually resulted when the pressure was carried to a high point, were, as a rule, quickly controlled by blowing off five pounds of pressure. He also tried the experiment of subjecting animals on alternate days to high pressure of oxygen and to compressed air, the series of observations being maintained for a considerable period. The cause of the convulsions produced by exposure to high pressure of oxygen he said was as yet undecided, but he was inclined to attribute it to the difference in the diffusion of oxygen and carbon dioxide under different degrees of pressure.

A second series of experiments was performed upon animals in which abnormal respiration had been induced. Dyspnœa might be classified as follows:

(1) That due to abnormal conditions of the air.
(2) Due to abnormal conditions of the blood.
(3) Due to obstructed circulation.
(4) Due to diminished surface from aëration.
(5) Due to neurotic influences.

In a cat in which dyspnœa was produced by cutting both vagi instant relief was given by exposing the animal to oxygen; while, on the other hand, the dyspnœa was increased by compressed air. In the second experiment a canula was introduced into the pleura of a dog. In the third pulmonary congestion was caused in a cat by injecting a solution of nitrate of silver into the lung-tissue, and the dyspnœa resulting therefrom was greatly relieved by oxygen. In other experiments the lung was compressed by injecting considerable quantities of water into the pleura, and in still others the animals were bled to the extent of many ounces. The results of these experiments, he said, went to show that oxygen does aid, in a moderate degree, certain types of dyspnœa.

In considering the therapeutic value of oxygen it was to be borne in mind that it was a physical impossibility to take oxygen into the blood. This agent had been employed, first, as curative in certain diseases of the blood and circulation, and, second, as a palliative in dyspnœa due to various causes. Of late, its use has increased to such an extent that two or three hundred thousand gallons of it were now consumed annually in New York City alone. Among the affections, in addition to dyspnœa from whatever cause, in which it was claimed that it had proved of benefit, were anæmia, chlorosis, croup, chronic gastric catarrh, migraine, cholera, and opium narcosis. It was used more generally in this country and on the Continent of Europe than in England. In Paris a supply was kept on hand at the stations along the Seine for use in resuscitating persons rescued from the river, and also at some of the fire and police stations.

In anæmia, chlorosis, etc., Dr. Thompson said he could see but little advantage over good fresh air in giving diluted inhalations of oxygen two or three times a day, as was the usual practice in such affections. It did not seem rational to him to expect that sufficient oxygen could enter the system, under these circumstances, to produce anything but a temporary effect. In cases of blood-poisoning, again, he had failed to see any relief afforded by oxygen. In certain subjective cases of dyspnœa it might relief, but in a case of poisoning by illuminating gas, which he had seen at the Presbyterian Hospital, it was kept up for nearly three days without any effect either on the rate of breathing or on the cyanosis present. In cardiac diseases his experience with oxygen had not been encouraging, and he referred particularly to a case of malignant endocarditis, in which it proved of no avail in relieving the dyspnœa. In certain cases of asthma and of uræmic dyspnœa, however, it gave decided relief, and in such he believed it was an invaluable therapeutic agent; though not, of course, curative.

DR. J. WEST ROOSEVELT spoke of the relation of the oxygen inhaled to the amount of oxygen absorbed, and said that while the amount which entered the plasma or the hemoglobin of the blood was comparatively small, he believed it was sufficient to cause appreciable results in many instances. As to the therapeutic value of oxygen, in the neurotic form of dyspnœa we had a condition in which the mere act of inhalation and the engaging of the attention of the patient would often have a beneficial effect. With oxygen in anæmia he had met with fairly good results, though the patients improved less rapidly than under the use of iron. If in any case the hæmoglobin was not saturated an improvement showed that more oxygen was carried than under ordinary circumstances. In his experience oxygen had proved of

considerable value; and in cases of diminished surface for aëration he had seen cyanosis decidedly improved under its use.

DR. GEORGE L. PEABODY said that so many circumstances were involved in estimating the value of an agent like oxygen that it was difficult to arrive at positive conclusions respecting it. Thus, when it was not the only therapeutic agent employed, it was impossible to say just how much benefit was derived from it; and this difficulty was increased in diseases which naturally tend to recovery. The question of the utility of oxygen, he believed, was still undecided. When the idea of its administration first occupied the profession it was the practice to give internally chemical substances, like chlorate of potassium, for instance, which were known to be rich in oxygen. It was far from certain, however, whether they yielded up their oxygen on entering the body; and even if this were so, it seemed probable that the resulting compounds might have a more or less caustic effect upon the tissues. This was apparently the case with osmic acid.

Later, it had become the practice to give oxygen by inhalation so that it would come directly in contact with the lungs. Its absorption depended probably on the amount of hæmoglobin in the blood at the time the oxygen was inhaled, but in any event the amount absorbed was unquestionably small. There was good reason to doubt the alleged efficiency of this agent, and personally he believed that just as much relief, as a rule, could be obtained from fresh air. It might be tried, however, in maladies attended by dyspnœa in which the blood is unchanged, such as pneumonia, emphysema, croup, and asphyxia from toxic gases; although, as Dr. Thompson had said, in poisoning from illuminating gas it had failed to give relief. There was no justification, he thought, for the extensive use of oxygen in general diseases, such as anæmia, chlorosis, gout, lithæmia, etc. Although the pulmonary gymnastics of the inhalations might have a beneficial effect in certain instances, there were other remedies which could be used with much greater advantage. That the use of oxygen hastened recovery in such diseases he did not believe, and the recognized facts of physiology were at variance with any such conclusion.

DR. BEVERLEY ROBINSON said that he differed entirely from Dr. Peabody, and that his clinical experience in many conditions afforded the most conclusive proof of the immediate and marked relief resulting from the use of pure oxygen. In anæmia he had found that those cases were most improved in which oxygen was used in connection with iron. The purity of the gas was a point of the utmost importance, and he said that a gas which he had formerly employed gave such poor results that he ceased to use it, There was a gas now manufactured in New York which was said to contain a certain amount of nitrogen monoxide; and it was worthy of note that Brown-Séquard had expressed the opinion that nitrogen was of great service in preventing the irritating and intensely exciting effects of oxygen alone.

In albuminuria connected with atrophic nephritis he had found the general nutrition of the patient notably improved under the use of oxygen; the digestive and assimilative powers being greatly assisted by it. Even in phthisis, while it did not have curative effect, it might prove beneficial. In the first place, the inhalations caused the patient to expand his lungs thoroughly; secondly, oxygen was itself an antiseptic, and, therefore, indicated; and, thirdly, it had the effect of improving the general nutrition. As had been well said, oxygen was really prescribed every time that a patient was sent to the mountains, to Southern California, to the plains, or on a sea voyage. But there were many cases in which it was impossible to send patients away, and he believed it was possible to stimulate the hæmoglobin in the blood, and thus enable the patient to carry more oxygen. In the use of such agents as oxygen he did not think we should be guided so much by experimental researches as by practical clinical experience. Without considering the curative effects of oxygen, there were certainly many cases where the last hours of patients could be rendered much more comfortable by resorting to its use.

DR. WALTER MENDELSON said that he felt compelled to concur with Dr. Peabody from what he had observed of oxygen. In anæmia, it was true, he had seen marked results under its use, but he did not believe that the benefit was due to this agent. He cited the case of an old man who inhaled ten gallons of oxygen a day, and became greatly improved. This improvement, however, he was convinced, was due to the systematic expansion of the lungs and to the moral effect of the knowledge that something unusual was being done for him. In cases of dyspnœa from various causes he had seen more or less relief afforded by oxygen; yet all the patients died. Still, as Dr. Robinson had said, their last moments may have been rendered more comfortable by the inhalations.

DR. MARY PUTNAM JACOBI said that the amount of oxygen which the hæmoglobin carries varies under different circumstances. In asphyxia of various kinds the physiological capacity remains the same, and, therefore, the indication is to administer oxygen. The correctness of this has also been shown by clinical experience. In anæmia, and especially chloro-anæmia, on the other hand, the hæmoglobin is diminished. The condition is precisely the reverse from that met with in asphyxia, and we cannot cause a much greater amount of oxygen to be absorbed.

DR. ANDREW H. SMITH was gratified to learn that the work which he did twenty years ago in the main still stands good. At that time he had demonstrated that animals could live perfectly well for four days in pure oxygen, care being taken to remove the effete products of respiration. It was his opinion that under ordinary conditions the blood is not fully saturated with oxygen, and that the point of saturation corresponds with the physical demand. This allowed a pretty wide margin, and it was perhaps within this margin that a considerable amount of oxygen could be absorbed by the blood. Thus the demand for oxygen was much greater in athletes engaged in violent physical exercise than in individuals making but little physical exertion. Therapeutically he had seen the greatest benefit received from oxygen in catarrhal conditions of the air-passages, such as was met with in suffocative bronchitis. In such cases he was at a loss how to explain the relief afforded by the oxygen, unless it was a fact that under these conditions the blood does not take up as much oxygen as the system requires. When pneumonia was present so many conditions were brought into play that the matter was

much more complex, and the relief afforded by oxygen very uncertain. Dr. Smith also said he had used oxygen with satisfactory results in opium poisoning.

Dr. Thompson, in closing the discussion, said that convulsions were produced in the animals experimented upon by the rapid increase of the pressure, and that such convulsions were quickly relieved by the rapid withdrawal of a portion of the pressure. He could not agree with Dr. Smith in his opinion regarding the saturation of the blood with oxygen, since he thought there could be no question that even under ordinary conditions the hæmoglobin is practically saturated with oxygen. In reply to Dr. Roosevelt he said that many individuals suffer from dyspnœa whose blood contains more oxygen than that of those with anæmia or suffering from hemorrhages. Dr. Robinson was certainly mistaken in attributing any irritating effects to oxygen. Pure oxygen had no irritating effects whatever, as had been repeatedly demonstrated. It produced no burning up of the tissues at all, as had been formerly supposed, and he could see no advantage of the nitrogen monoxide referred to over ordinary air.

CORRESPONDENCE.

ANTIPYRIN A CONTRA-INDICATION IN MENSTRUATION.

To the Editor of The Medical News,

Sir: Your extract from report of Dr. H. Huchard, in The Medical News, February 23, 1889, page 215, I believe is valuable rather as showing peculiar susceptibility to antipyrin on the part of Dr. Huchard's patient, and perhaps over-dosage, than as demonstrating any danger in administering antipyrin in dysmenorrhœa in proper doses. Was not the stopping of the menstrual flow due rather to the disturbance of circulation than otherwise? I have given antipyrin for over two years to nearly every case of dysmenorrhœa coming under my care and with complete relief in nearly every instance and no diminution of menstrual flow. But I seldom find more than ten grains necessary and oftener find five grains sufficient, always beginning with the latter dose.

I believe it is a very valuable drug and capable of much good in much smaller doses than usually recommended, especially in dysmenorrhœa; anyone who will try will be surprised how many cases of dysmenorrhœa and wearing pains during first stage of labor will be relieved by five grains repeated as needed.

I have some reason to fear that its continued use blackens the teeth.

H. G. Norton, M.D.

Trenton, N. J., April 29, 1889.

NEWS ITEMS.

The American Laryngological Association.—The following is the programme for the Eleventh Annual Congress of this society, Washington, on May 30th and 31st and June 1st:

"Report of the Removal of a Supernumerary Tonsil: Specimen and Drawings." By E. Carroll Morgan, M.D., of Washington.

"An Œdematous Form of Disease of the Upper Air-passages." By Wm. C. Glasgow, M.D., of St. Louis.

"The Relation between Facial Erysipelas and Erythema on the one hand, and Intra-nasal Pressure on the other." By George W. Major, M.D., of Montreal.

"Acute Multiple Adenitis (Septic?); Œdema of the Larynx, with Spontaneous Cure; Laryngoscopic Appearances." By Samuel W. Langmaid, M.D., of Boston.

"Some Points in the Pathology and Treatment of Diseases of the Nasal Pharynx." By John N. Mackenzie, M.D., of Baltimore.

"Observations upon the Condition known as Adenoid Hypertrophy at the Vault of the Pharynx, and the Methods used for its Relief." By D. Bryson Delavan, M.D., of New York.

"Three Rare Cases. Illustrated." By George M. Lefferts, M.D., of New York.

"Warts in the Nasal Passages." By E. Fletcher Ingals, M.D., of Chicago.

"Some of the Manifestations of Syphilis of the Upper Air-passages." By T. Amory De Blois, M.D., of Boston.

"Note on the Galvano-cautery in the Treatment of Hypertrophied Tonsils." By Charles H. Knight, M.D., of New York.

"The Treatment of Diseased Tonsils when unattended with Hypertrophy." By John O. Roe, M.D., of Rochester.

"Experimental Methods of Studying the Actions of the Intrinsic Muscles of the Larynx." By Franklin H. Hooper, M.D., of Boston.

"Dysphonia Spastica." By Frederick I. Knight, M.D., of Boston.

"A Case of Sarcoma of the Thyroid Gland; pressure on the right sympathetic nerve; unilateral tonic spasm of laryngeal muscles; intermittent clonic spasm of opposite side; compression stenosis; tracheotomy; hemorrhage from gland twenty months later; pressure upon the left sympathetic nerve; death from disturbance in the functions of the two sympathetics." By J. Solis-Cohen, M.D., of Philadelphia.

"Memorandum of a Recurrent Laryngeal Growth, appearing Twenty-two Years after Removal." By Rufus P. Lincoln, M.D., of New York.

"Some Unusual Manifestations of Tuberculosis of the Larynx." By Clarence C. Rice, M.D., of New York.

"Report of Two Cases of Tuberculosis of the Tongue." By C. E. Bean, M.D., of St. Paul.

"The Advantages of Occasional Applications of Silver Nitrate in Chronic Laryngitis." By S. Solis-Cohen, M.D., of Philadelphia.

"Some Manifestations in the Throat of Lithæmia and Allied Conditions." By F. Whitehill Hinkel, M.D., of Buffalo.

"On the Local Treatment of Diphtheria." By J. C. Mulhall, M.D., of St. Louis.

"Hemorrhage from the Larynx." By Wm. Porter, M.D., of St. Louis.

The profession is cordially invited to attend the sessions of the Association.

The Johns Hopkins University.—The departments of pathology and biology at the Johns Hopkins University have been combined and will be called the department of Normal and Pathological Biology, with Professors

Martin and Welch at the head, assisted by Assistant Professors Brooks, Howell, and Councilman and Drs. Andrews and Mall. Those working in this department may take any or all branches, but the object of the arrangement is evidently to compel students to study normal biology first and pathology last. Under the first head will be included physiology, histology, morphology, and botany, and in pathology will be included gross and microscopical pathology, experimental pathology, and bacteriology.—*Maryland Med. Journal*, May 11, 1889.

Resolution on Dr. Keen's Retirement from the Woman's Medical College.—At a stated meeting of the Faculty of the Woman's Medical College of Pennsylvania, held May 18, 1889, the following resolution was offered:

"*Resolved*, That the Faculty of the Woman's Medical College of Pennsylvania have learned with deep regret of the resignation by Professor W. W. Keen of the Chair of Surgery in this College.

"Dr. Keen's enthusiasm as a teacher in a department for which he is eminently qualified, and his unhesitating surrender of time in doing a generous share of Faculty work, has made his connection with the College conspicuously valuable and helpful.

"The Faculty also desire to express their sense of personal loss in this severance of relations which have ever been most harmonious and agreeable, and to proffer their congratulations to Dr. Keen in view of his new appointment with warmer wishes for success and happiness in his future work."

Prof. Billroth's Sixtieth Birthday.—On May 6th, at 9 o'clock, Prof. Billroth commenced his clinical lectures for the present summer semester, and the opportunity was taken by his pupils and colleagues to give him a splendid ovation. The entrances to the clinic were decorated with flowers, and his working cabinet was almost transformed into a garden. Two hours before the beginning of the lecture the theatre was filled to the roof with students. At nine o'clock came the members of the committee of the "Billroth Feier," and those professors of the Vienna Medical Faculty who were not prevented by their duties from being present. There were present among other distinguished persons, Prof. Böhm, director of the Vienna General Hospital, and Profs. Lang, Fuchs, Kahler, Schnitzler, Chrobak, Dittl, and Frisch, etc. Of Billroth's former pupils, there were Prof. Wölfler, of Gratz, Prof. Mikulicz, of Königsberg, and Prof. Gussenbauer, of Prague.

At nine o'clock, Prof. Billroth, accompanied by his two present assistants, Dr. Salzer and Dr. von Eiselsberg, appeared in the theatre, and was received with a tempest of applause. An address was presented in the name of the students, to which Prof. Billroth replied in a speech in which he gave a sketch of the development of the medical sciences since the reign of the Empress Maria Theresa. He also alluded to the part which surgery had to play in the future, stating that its first task would be to get rid of tuberculosis. Among the first to congratulate Prof. Billroth at his own house was the Servian minister, Dr. Gjorgewitch, an old pupil, who presented him with the Grand Cross of the Servian St. Sava Order.

Among the numerous presents was a picture representing Billroth's famous teacher, Bernard von Langenbeck, in the middle; around this central figure are the gymnasium and University of Greifswald, the hospital and aula of the University of Göttingen, the University and Bethanien Hospital of Berlin, the University of Vienna, the Rudolphiner Hospital of Döbling (near Vienna), the Austrian House of Lords, the General Hospital of Vienna, and Billroth's house.

The medal presented to Prof. Billroth by the students bore on the obverse the words: *Theodorus Billroth ætatis suæ LX*, with a portrait of the professor; on the reverse the words *Medico artifici pietate conjuncti discipuli et sodales*. A torchlight procession, which was arranged by the students for this evening, was forbidden by the police, probably in consequence of the recent tramcar riots.—*The British Med. Journal*, May 11, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 14 TO MAY 20, 1889.

By direction of the Acting Secretary of War, a Board of Medical Officers, to consist of: ANTHONY HEGER, *Colonel and Surgeon;* F. C. AINSWORTH, *Captain and Assistant Surgeon;* and JOHN O. SKINNER, *Captain and Assistant Surgeon*, will assemble at the U. S. Military Academy, West Point, New York, about June 1, 1889, to examine into the physical qualifications of candidates for admission to the Academy and members of the graduating class.—Par. 9, *S. O. 108, A. G. O.*, May 10, 1889.

By direction of the Acting Secretary of War, the following-named officers are detailed to represent the Medical Department of the Army at the annual meeting of the American Medical Association, to be held at Newport, Rhode Island, on the 25th of June, 1889: SAMUEL M. HORTON, *Major and Surgeon;* JOHN S. BILLINGS, *Major and Surgeon;* CHARLES SMART, *Major and Surgeon.*—Par. 15, *S. O. 110, A. G. O.*, May 13, 1889.

By direction of the Secretary of War, the leave of absence granted to AARON H. APPEL, *Captain and Assistant Surgeon*, in S. O. 38, April 16, 1889, Division of the Missouri, is extended twenty days.—Par. 2, *S. O. 114, A. G. O., Washington*, May 17, 1889.

By direction of the Secretary of War, leave of absence for four months, with permission to go beyond sea, is granted WILLIAM STEPHENSON, *Captain and Assistant Surgeon.*—Par. 15, *S. O. 114, A. G. O., Washington*, May 17, 1889.

By direction of the Acting Secretary of War, leave of absence for six months, on surgeon's certificate of disability, is granted R. G. EBERT, *Captain and Assistant Surgeon*, and E. B. MOSELEY, *Captain and Assistant Surgeon.*—Pars. 5 and 6, *S. O. 109, A. G. O.*, May 11, 1889.

By direction of the Acting Secretary of War, LOUIS S. TESSON, *Captain and Assistant Surgeon*, is relieved from duty at Watervliet Arsenal, New York, and ordered to Fort Sidney, Nebraska Territory.—Par. 9, *S. O. 109, A. G. O.*, May 11, 1889.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon.*—Now on duty at Fort Barrancas, Florida, will report in person to the commanding general Department of the Missouri, for temporary duty with troops in the field.—Par. 1, *S. O. 112, A. G. O, Washington*, May 15, 1889.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon.*—Will accompany the command from Fort Barrancas, Florida, and proceed with Battery "H," Second Artillery, to Fort Adams, Rhode Island, and to return to his proper station on completion of this duty.—Par. 5, *S. O. 108, Headquarters Division of the Atlantic, Governor's Island, New York City*, May 13, 1889.

RAFFERTY, OGDEN, *First Lieutenant and Assistant Surgeon.*—Is granted leave of absence for one month.—Par. 3, *S. O. 29, Headquarters Department of Texas, San Antonio, Texas*, May 13, 1889.

KEAN, JEFFERSON R., *First Lieutenant and Assistant Surgeon* (Fort Robinson, Nebraska Territory).—Is hereby granted leave of absence for one month, to take effect between the 1st and 15th of June, 1889, with permission to apply at Headquarters Division of the Missouri, for an extension of fifteen days.—Par. 2, *S. O. 48, Headquarters Department of the Platte*, May 13, 1889.

589

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

INTESTINAL ANASTOMOSIS.[1]

BY ROBERT ABBE, M.D.,

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ABOUT three years ago a lady came to me from the South with a fecal fistula in the right groin, resulting from the sloughing of five inches of intestine in a strangulated hernia. Three physicians had made intelligent operative efforts to close it, and left her only worse off, as the distal end had slipped back and been lost in the abdomen. The case was a challenge to surgical skill. During several months I made careful and conscientious attempts to cure her. At first, the abdomen was opened to search for the distal end; it could not be found. Therefore, I stitched the proximal end and the ascending colon side by side in the wound, and a few days later opened the colon. A permanent channel was thus established between ileum and colon, when the fistula was capped, and some movements occurred *per anum*. Dupuytren's enterotome was then applied, and the spur cut through for two and a half inches. Still the big fistula leaked most of its contents. Two elaborate plastic operations were then done, using the abdominal skin after the manner of Czymanowski, by which I had closed urethral fistulæ. But these proved futile, and she remained with the usual excoriated abdomen, filthy wound, and marasmus. My colleague, Dr. McBurney, then tried a partial resection of the edges, with inversion and suturing, and from this operation she died.

I have narrated briefly this case to illustrate a considerable class of sufferers whose fecal fistulæ until very recently have baffled the surgeon. Such cases rankle in our memory as marking the limit at which successful work comes to a halt. To-day, thanks to the untiring energy and genius of Dr. Senn, of Milwaukee, such, and many other cases, can be offered the hope of immediate relief by intestinal anastomosis.

The principle of intestinal anastomosis is by no means new. It is on the technique of operative procedure only that its appeal to renewed favor rests. I need not narrate the methods formerly in vogue to restore the intestinal canal. Plastic operations, resections with circular enterorrhaphy, and lateral apposition with suturing, have had a certain value for many years; the unanswerable objections to them all being a dangerous consumption of time, frequent leakage, and secondary abscesses. With Senn's researches, new life has been infused into this branch of surgery. I will not review his work; it covers the ground of experimental production of intestinal flexion; volvulus, stenosis, invagination, and resection, and in reparative work the study of two methods of restoring the intestinal canal—lateral implantation of a smaller into a larger gut, and lateral apposition of openings into similar portions of bowel. The outcome of it all has been an anastomosis of an interrupted intestinal canal by the safe and speedy method of using decalcified bone plates for approximation. I believe the value of this method will soon be recognized everywhere. His experiments have already been repeated by several and the results uniformly verified.

Those done by Mr. F. B. Jessett and Victor Horsley, and reported six weeks since to the Royal Medical and Chirurgical Society, are noteworthy. Jessett adds his statistics to those of Senn and Curtis, and finds that approximation by the Czerny-Lembert method showed a mortality of about 86½ per cent. against 25 per cent. by the method of lateral implantation, and 7½ per cent. by Senn's bone approximation disks. A method which thus offers an advantage ten times as great as the old one in mortality, and that can be done in one-third or one-quarter of the time, may well inspire enthusiasm.

The application of this principle to man has as yet been limited. Dr. Senn has in six cases applied the plate method in gastro-enterostomy for cancer of the pylorus, with results detailed in four of them in his *Intestinal Surgery*. The two recently done were also successful. Dr. Fenger, of Chicago, and Dr. Hunter, of Minneapolis, have also used them. Successful each in one case. Dr. Ransohoff, of Cincinnati, operated December 31st for gastro-enterostomy by plates in a case of malignant pyloric stenosis with excellent success. An extended search fails to find other recorded cases.

My own experience includes some experiments on dogs, and two successful applications to the human subject. The man whom I first operated on lived three and a half months after I united his ascending and transverse colon by Senn's plates on either side

[1] Read before the Philadelphia County Medical Society, May 8, 1889.

of a malignant stenosis of the hepatic flexure of the colon. His case has been fully reported in the *New York Medical Journal*, March 23d last. The essential points of the case were, progressive obstruction, enormous fecal accumulation, marasmus, and finally collapse—relieved by a colotomy done when he was *in extremis*, and followed six weeks later by colo-colostomy with Senn's plates, Nov. 14, 1888. After this he rapidly gained, and in three months was enjoying excellent health. Suddenly there ensued a painless diarrhœa that could not be checked. Rapid emaciation and death followed in twenty days. Autopsy showed that nature had made an artificial opening between the duodenum and transverse colon at the site of malignant stricture. Thus all the small intestine had been excluded, and food passed practically from his stomach directly into his colon undigested; and starvation followed. The specimen obtained shows perfectly the aperture between the portions of colon. It is an oval, the long diameter of which is an inch and a quarter; nearly as long as the incision made three months before. It shows there is little to be feared from the contraction of the opening, and it also shows that an opening very much smaller than the diameter of the bowel is competent to allow one part to empty into another. I would have been very glad to be able to make a larger opening, but this was about the maximum possible by using Senn's plates. The patient had had daily evacuation of the bowels, but it had been half the time through the use of mild cathartics. A larger opening would have obviated the use of these.

The needs of this case, coupled with the fact that I had not been able to get large enough plates to suit the colon, and that the preparation of decalcified bone plates consumed several days and considerable labor, led me to review the ground that had been gone over to get a more available material. I was aware that almost every known soluble substance had been tried, including cartilage, which Jobert and others had used. I devised a ring of rubber, made in segments fastened by catgut which would fall apart after a few days, but abandoned that when I made a stiff one entirely of catgut, which, being wholly digestible, would accomplish what the plates of bone would and then disappear. I made some small sets and tried them on a dog, with the assistance of Dr. Weir and Dr. B. Farquhar Curtis. Beautiful results were obtained in two specimens. When the gut was cut, the ends were invaginated and sutured by continuous Lembert stitch. The two ends being laid side by side, a longitudinal cut was made in each near its end, a ring slipped into the gap in each, and four sutures on the ring stitched through the edge of the gap. The corresponding threads now being tied, pulled the two rings together, and the edges of the opening were thus sandwiched, as it were, between two rings. Four extra silk stitches were added outside to prevent the lips of the cuts puffing out between the first threads.

The proof of the security of apposition is seen in the dog's recovery. Evacuations were free and regular after the operation, and each of the specimens was taken out with the dog in perfect health nine days after the operation. The union was so perfect that the intestine would have burst elsewhere sooner than have given way at this place. The catgut had entirely gone; a few of the silk threads that held them were yet loosely hanging in the puncture points, ready to come out on slight pulling. The coils of approximated gut, though performing their functions well, showed considerable contortion, and in two later experiments I turned the divided ends to look in opposite directions with better result. These were done on the same dog at the same time, and were made to show a class of physicians the advantage of this method where multiple resections of the gut might be called for, as in gunshot wounds. Four inches of intestine were cut out at each place and the catgut apposition rings applied, the ends being reversed. The result has been perfect. A very large aperture of communication was obtained by the long narrow ring, which so easily slips into the bowel. The twisting of the adherent coils was not nearly so much as in the former case. I am convinced that by the two expedients of using long narrow apposition rings to obtain a large opening, and by placing the intestines as suggested, to obtain continuous peristaltic wave, we obviate a temporary blocking of the operated part which must obtain with the bone plates and small openings, and which leads to much twisting.

In this experiment it took exactly fifteen minutes to resect and complete each apposition. This includes a continuous outside silk suture around the circumference of the ring, which was applied quicker than half the number of interrupted sutures could have been.

An opportunity now came to put in practice the method above described.

In November last a woman of slight build and thirty years old came under my care at St. Luke's Hospital, with a history of uterine disorder for two years, and presenting a small tumor in the right iliac fossa. She had vomited, become anæmic, suffered much local pain, and had developed night-sweats with slight hectic. Pyosalpinx was diagnosed and operation advised. A five-inch median cut was made above the pubes. The diseased mass with omentum and coils of small intestine intimately adherent, was found to be a suppurating ovary as large as a goose-egg. Some intestines were stripped off, others seemed too firm. One of my assistants, a

distinguished disciple of Mr. Tait, being asked to examine to see whether the tumor could be removed, or whether it had best be scraped out and drained, succeeded, while examining, in digging the ovary from its bed, after the manner of Tait, who says no tumor of this character need ever be left, no matter how firmly adherent. I was surprised and delighted to be shown that this mass could be thus removed by the fingers. Notwithstanding that the suppuration had been disseminated in the wound, it was readily douched away by copious hot water effusions; but great chagrin followed the immediate discovery that a circle more than an inch in diameter had been torn from the side of an adherent loop of intestine and was on the tumor. Feces appeared at once in the deep cul-de-sac of the pelvis. I promptly found and sutured the damaged bowel, irrigated and applied a tamponade of iodoform gauze lightly, and closed the wound except for drainage. Two days later feces welled up in the wound, and a horrible, and, I feared, a hopeless fecal fistula was thenceforth established.

During the following six months the patient passed through not only the suffering incident to her fecal fistula, but also a severe attack of scarlet fever with acute desquamative nephritis. And when I returned to hospital duty I found her emaciated and weighing less than seventy pounds. Her abdominal wound healed, except over the pubis, where a long funnel-shaped wound, lined by poor granulations, gave vent to her entire fecal discharge, which came from the depths of the pelvis. The skin about it was sadly excoriated, and too tender to allow adhe sive straps to retain dressings. She was of a cheerful disposition, and hopefully looked to me to relieve her, even at the risk of life, which had become a burden. With the picture in my mind of the intestines matted together, and in the midst of all a portion whose lumen was destroyed, from which feces poured, in the site of the ovarian abscess, I looked upon the case with grave doubt of cure. The more so, because she had been subject to a hectic, with daily exacerbation of temperature to 102° and 103° up to the day of operation. My experiments with intestinal anastomosis, however, gave hope, and on March 22d—six weeks ago—I operated. Ether anæsthesia was used, notwithstanding she had five per cent. of albumin in her urine.

I dissected out the cicatrix around the funnel-shaped fistula, and opened the laparotomy wound upward. The intestines in the entire lower abdomen were matted firmly together, and uniformly studded with miliary tubercles. The pathologist's report confirms this, and I presume the original ovarian mass was a tubercular ovary, though I regret to say it was mislaid at the operation. With great care the intestine leading to the fistula was dissected out on either side of it for four inches, and cut squarely across. The ends were then turned in for half an inch and closed by a single row of continuous Lembert sutures of fine black silk. It was impossible here to turn the ends in opposite directions, and they were laid side by side, split open longitudinally for an inch and three-quarters, nearly to the end, and united with catgut apposition rings, with a half-dozen reinforcing silk stitches outside. The entire wound was douched liberally with hot water, and a portion of the deeply adherent gut between the cut ends was further dissected away. The wound was closed, except for a light tamponade of gauze at the site of the fistula.

The patient rallied nicely, had no pain whatever afterward, and no feces came into the wound. She had a little vomiting the next day, but retained koumys and champagne, an ounce every two hours, in drachm doses. At the end of the fourth day, her temperature having risen to 102°, I gave liq. magnes. citrat. ℥jv, and repeated. Three natural and painless movements passed by the rectum for the first time in six months, and her temperature fell to 100°. Daily movements took place from that time on, at first assisted by four ounces of magnesia every third day. The wound granulated nicely, and no feces have ever appeared there. The patient walked about after the fourth week, and is restored in appetite and health. She now gains three pounds weekly, is free from pain, and is making a happy convalescence. Her evacuations are normal and regular, well formed, and occur without the use of medicine.

Thus is completed a proof of the efficacy of a new method, treating a malady which I know of no other method as competent to cope with. I can hardly conceive of a fecal fistula in any part of the bowel (except, perhaps, low in the rectum) that may not be safely cured by this method, provided the distal portion is not blocked by disease. In cases of gangrenous hernia, bullet or other wounds requiring exsection of a portion of the bowel, it may be applied at once, or after an artificial anus is established and the patient is convalescing. No surgeon or physician need hesitate to make a fistula to relieve obstruction, or in other suitable cases where the equipment to complete the immediate anastomosis is not at hand, or where the patient's condition will not endure much interference, as in the first case narrated.

Two weeks ago my friend, Dr. Charles McBurney, applied a set of my catgut rings to a case of gastro-enterostomy, and writes as follows:

"The case was one of cancer of the pylorus which caused total obstruction. The patient would not consent to an operation until he was nearly moribund. The anastomosis was made between the highest part of the jejunum and the anterior of the stomach, near the greater curvature, and about three inches from the pylorus.

"The operation was perfectly easy and rapid, and the rings acted perfectly. The whole operation took forty-five minutes, much time being lost on account of imperfect washing of the stomach beforehand. I think it could easily be done inside of thirty minutes.

"Death occurred from inanition about twelve hours later. On careful post-mortem test, the stomach being filled with colored fluid and held up, absolutely no leakage at the site of operation occurred."

To make the rings most efficiently the following steps must be observed: A moderately heavy catgut

is chosen; taken from alcohol or juniper oil, it is wound loosely on a test-tube and soaked in hot water. It soon kinks up, and, were it not on a tube, could hardly be unravelled. After a while it is straightened out, allowed to untwist, wound again loosely, and soaked in hot water once more, until it ceases to twist. It is then ready to make up into rings, which will lie perfectly flat. Eight or ten turns over two pins stuck in a cork two inches apart, will make a bundle somewhat smaller than a lead pencil. These may be tied at four places with fine silk, to secure the strands parallel while being wound round like a cable, with a continuous piece of the same catgut. The end of the piece is secured by threading it into a Hagedorn needle, and transfixing the whole bundle obliquely with it at the place of finishing. Thus there are no knots, and it is difficult to find the point of beginning.

The ring is now a long oval with an inside diameter of two inches, and in thickness smaller than a pencil. Six strong but small braided silk threads are now fixed to each ring, equidistant, on the face looking toward the other ring which is to be laid against it. No knots are used. A needle pierces the ring between the strands, carrying the thread, which is drawn through all but eight inches, and wound once and a half round, sinking between the encircling catgut, piercing the ring again, and cut off. The rings, which have now been water-soaked, are ready for use if needed for emergency; but, if possible, they should be kept awhile in alcohol, under pressure between two glass slides, the threads being curled up within the oval, and the sides being pressed together after the glasses are tightly tied together. The ring thus becomes a long oval with parallel sides, and soon becomes harder and flattened on its faces. Moreover, it shrinks a trifle in alcohol, to swell again in the intestine and give additional security.

In using the rings, I find it saves time to have each thread have its own needle. The intestine is pierced from within outward less than a quarter of an inch from its cut edge. The ring should be laid on a damp folded towel with threads in order and needles stuck in the towel, which is held by the assistant close to the bowel, while the operator quickly pulls the threads through and passes the ring into the interior of the bowel. When the threads are tied and cut off, the apposition is perfect, but by a quickly made running suture outside all, a half inch of peritoneal surface is at once secured beyond the possibility of leakage. More than this is superfluous, for the edges held between the rings act as valves.

In invaginating the end of the cut intestine after exsection, one will delay a long while if he tries to turn in first one and then the other edge, and will also find the mesentery try to turn in after it on the attached side. My rule is to trim back the mesentery at least a half inch from the end. Then seizing both lips with toothed forceps, plunge them directly into the lumen. The entire edge usually follows, and one holds them by the left index finger and thumb while a quick running overhand suture of the slit thus formed is made.

REPORT ON THE TREATMENT OF FOURTEEN CASES OF DISEASE OF THE SPINAL CORD, BY THE METHOD OF SUSPENSION.[1]

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ALTHOUGH the treatment of locomotor ataxia by suspension was introduced in 1883, by Motchoukowsky, of Odessa, in Russia, the method received no extended trial in that country, and failed to attract notice elsewhere until the attention of Prof. Charcot was directed to it last autumn. Since the date[2] of the publication of the latter's first lecture on the subject, the method has received such publicity through the journals that a description of it here is unnecessary.[3]

In cord affections occurring secondarily to disease of the vertebræ this method was advocated, and practised with good results, so long ago as 1826 by Prof. J. K. Mitchell, of the Jefferson Medical College, and has been employed for a number of years by Dr. S. Weir Mitchell[4] in the same class of cases. The latter, indeed, about the time of Motchoukowsky's discovery, was induced to attempt suspension in two cases of spastic paraplegia in which no spinal caries existed; the excellent results obtained from it in pressure paralysis having led him to believe that stretching the cord, and thus altering its vascular conditions, even when signs of meningeal inflammation were absent, would helpfully affect both cord and membranes. Unfortunately, in these cases, no benefit followed; had it been otherwise, suspension would, no doubt, long since have been generally recognized as a useful adjunct to our scanty therapy in chronic degenerations of the spinal cord.

Closely following the introduction of the method into France it has been used in many forms of dis-

[1] Read before the College of Physicians of Philadelphia, May 1, 1889.

[2] Progrès Médical, Jan. 19, 1889.

[3] For details, vide Progrès Médical, Jan. 19 and Feb. 23, 1889; Rev. Gén. de Clinique, Feb. 14, 1889; and The Treatment of Locomotor Ataxia by Suspension; translated from the French of Prof. Charcot, and edited by H. de Watteville, M.D. D. Stott, London.

[4] Vide Treatment of Pott's Paralysis by Suspension, etc., by S. Weir Mitchell, M.D. American Journal of the Medical Sciences, May. 1889.

ease of the cord, in various forms of chronic degeneration of the nervous system, and in functional nervous trouble, such as neurasthenia; but, thus far, no report has appeared of a sufficiently extended trial in these to justify positive conclusions as to its utility. I have not, as yet, suspended more than a few times, at very irregular intervals, cases other than those of cord disease. Efforts are now being made to induce a considerable number of chronic nervous cases, which have been intermittently under observation in the out-patient medical department of the Jefferson Hospital for some time, and which, seemingly, are such as might receive benefit from this treatment, to submit to its trial. Later, a report will be made on suspension in these. The fourteen upon which this paper is based comprise eight tabetics, three cases of spastic paralysis, two of ataxic paraplegia, and one of myelitis. The following are brief histories of these:

CASE I. *Locomotor ataxia; second stage.*—Clement N., aged thirty-eight years; waiter. First seen January 23, 1889. He then had had severe lightning pains for a year or more. There had been present from about the same time incoördination of movement, especially in the dark. This was increasing. There was heightened sexual desire, with nocturnal losses, constipation, and vesical incontinence. Swaying was so decided, with feet together and eyes closed, that he would fall if unsupported. He had lost twenty pounds in weight in eight months. The upper extremities were not involved. There were no eye symptoms. There were plantar anæsthesia, with delay in transmission of an impression, perverted temperature sense, and absent knee-jerk. Had syphilis in 1879.

He was placed on mercuric iodide until treatment by suspension was begun, on February 18th. The only change in his condition then was slight diminution in the severity of the pains. He has been suspended, in all, thirty-six times, usually four times a week, Monday, Wednesday, Thursday, and Saturday being the days chosen. The duration of the first suspension was one minute, the second one and a half minutes, the third two and a half minutes, the fourth three minutes; all the subsequent suspensions were from four to five minutes, usually the latter. He was swung entirely from the ground in all the suspensions. The first three suspensions were by the head alone, but so much spinal pain was felt during them that, thereafter, shoulder-straps were also used, he being directed to raise and lower the arms slowly three to four times in a minute. At the fifth suspension marked improvement was apparent; his gait was decidedly better; static ataxia had lessened materially, the lightning pains had decreased in severity and frequency, and plantar anæsthesia had diminished.

During the second week of treatment the pains entirely disappeared, and have not returned. Since then improvement has been gradual, though continuous, to the present. The increased sexual desire, constipation, and vesical incontinence have disappeared. He is now able to walk with eyes closed; static ataxia is slight; subjective sensation in the plantar surfaces is good, and the two points of the æsthesiometer are now felt at the normal distance; temperature sense is normal; the knee-jerk has not returned.

CASE II. *Locomotor ataxia; second stage.*—William E. T., aged forty-six; clerk. Had been under observation but a short time when suspension was begun. The following is an abstract of the symptoms noted the day of the first suspension: He had *petit mal* for one and a half years preceding the onset of tabetic symptoms three years ago. There then appeared lightning pains, which continued intermittently until suspension was begun. Before the first suspension they were very severe, and were aggravated in damp weather. Sexual desire was at first increased and then lost. There were constipation, alternating with fecal incontinence, and loss of vesical control. The gait is ataxic; there is staggering in the dark and in turning. Swaying is decided with feet together and eyes closed. The upper extremities are unaffected. There is decided tactile anæsthesia of the lower limbs. Temperature sense is perverted. Tactile and temperature sense are decidedly delayed. Knee-jerk is absent. There are no eye symptoms. He is melancholic; attributes his disease to mental worry. No specific history.

He was first suspended February 15th, and subsequently three to four times weekly to the present; but occasionally there was an interval of several days between. The first four suspensions were entirely by the head; in the later ones shoulder-straps were used, the arms being raised and lowered as in the other cases. First suspension occupied three-quarters of a minute; the second two minutes; the third and fourth two and a half minutes, and all the subsequent ones two to five minutes, the average being three minutes. He was rarely suspended five minutes, because of severe pain always appearing in the cervical and dorsal region when the treatment was prolonged. He thinks the improvement better when the time of suspension is shorter. After the fourth suspension there was improvement in the gait, and decided diminution in the severity of the lightning pains, though the weather was bad for some time. After the seventeenth suspension, vesical and fecal incontinence entirely ceased, and has not returned. The improvement in his gait had then begun to be remarked upon by all his acquaintances.

He has now been suspended thirty-two times. There has been no change in his condition since the twenty-fifth suspension. It was then noted that his walk and station were far less ataxic than at first. There is a most decided improvement in his mental condition; cheerfulness has replaced despondence; he has gained strength; appetite and sleep are better than at first. The lightning pains no longer occur; rheumatoid pains are occasionally felt prior to a storm, but are of no severity. Sexual desire and capacity have not returned. Knee-jerk remains absent. There is less tactile anæsthesia in the lower limbs; sensation, however, is still delayed. He can distinguish heat and cold, but there is delay in transmission as before.

CASE III. *Locomotor ataxia; second stage.*—John Van S., aged fifty-three. Has been under observation for ten years. Knee-jerk has not been present during that time. Gait has been ataxic for twenty years; anæsthesia and lancinating pains have been present for the same period. There was loss of sexual power and desire, which returned somewhat for a time, with, also, some amelioration in the other symptoms, under the salts of silver and potassium iodide; but, prior to the first suspension, locomotion without two canes had been impossible for seven years. The gait was typically ataxic, and there was retroflexion of the knee-joints. Lightning pains were severe and constant. Tactile sense was diminished; temperature sense was normal. There was concentric limitation of the visual field with a normal fundus.

The first suspension (one-half minute) was on February 20th; the second (two minutes) on February 25th; the third (two minutes) on the 27th. Since then he has been suspended from three to four times weekly, receiving in all thirty suspensions, which, after the fourth, were of five minutes' duration. No pains occurred during them. The method was the same as in the preceding cases. The lancinating pains disappeared the day following the third suspension, and have not returned. On the day of the fourth suspension (twelfth of treatment) he appeared at the hospital without a cane, coming a distance of several miles, and walking a fair part of the way; the first time he had done without support in locomotion in seven years. Subjective sensation in the plantar surfaces was also better, and he expressed himself as feeling "like an old buck." This improvement in gait has been continuous to the present, and is remarked in wonder by his family and neighbors. Sexual power and tactile sense have improved. The knee-jerk has not returned.

CASE IV.[1] *Locomotor ataxia; second stage.*—George L., aged sixty-three years; schoolmaster. Seven years ago lightning pains, anæsthesia of the lower limbs, and an ataxic gait appeared, with loss of sexual desire. An examination immediately before suspension was begun showed markedly ataxic walk and station; absent knee-jerk; decided tactile anæsthesia in the extremities; Argyll-Robertson pupil. There were girdle and shooting pains. No specific history. He was at first suspended every day for three weeks; and subsequently on alternate days. The average length of each suspension was two and three-quarters minutes. There has been a very distinct improvement in gait, and incoördination is slight compared with what it was. The girdle sensation has disappeared, and the lancinating pains, though not entirely gone, have much ameliorated. The knee-jerk has not returned, and the reflex immobility of the pupils and loss of sexual desire continue. The mental condition has improved.

CASE V. *Locomotor ataxia; first stage.*—James L. E., aged forty; brakeman. For several years he has had characteristic lightning pains, and recently has noticed uncertainty of walk in the dark. With closed eyes there is bad station. The gait is not ataxic. The knee-jerk is absent; no reinforcement. There is Argyll-Robertson pupil. He has been suspended four times. After the second suspension there was a decided lessening in the severity of the pains. This case came to the hospital from a distance, unprepared to remain longer than a week. A report on his condition will be made at another time, after further suspensions.

CASE VI. *Locomotor ataxia; second stage.*—Mrs. M. C., aged forty-eight; general housework. Since September, 1883, she has had paralysis of the left third nerve, causing mydriasis, external strabismus, and almost complete ptosis. In 1887, locomotion became difficult, at first only in the dark, but soon in the light. She has had lightning pains for over a year, and rheumatoid pains occur in the joints, worse in damp weather. There is a constant sensation of burning and weight in the dorso-lumbar region, and the spinous processes of the vertebræ in this situation are decidedly tender on firm pressure. There are: staggering gait; inability to stand with feet together and eyes open; absent knee-jerk; pronounced tactile anæsthesia in the lower limbs, and especially in the plantar surfaces; normal temperature sense. An examination of the eye showed hypermetropia; a normal fundus; total paralysis of the left third nerve; pupils irregular in outline, responding sluggishly to light, and immobile to accommodation. The above points were noted when she first came under observation, two months before beginning suspension, and again immediately before. She had received no benefit from medical treatment.

The first suspension was on February 15th, and the last on March 30th, she receiving it in all twenty-one times, usually four times a week. The first two suspensions occupied three-quarters of a minute; the third, one minute; the subsequent ones from two to five minutes, usually the latter. The method was similar to that pursued in Case I., and the intervals were the same. The first three suspensions were accompanied and succeeded by an increase in the sensations of burning and weight in the dorso-lumbar region; this, later, disappeared, but returned occasionally while suspension was continued. The tenderness over the spinous processes, however, entirely disappeared. The shooting pains were decidedly ameliorated, and station improved after the sixth suspension. The ptosis was noted to be much less at the date of the twelfth suspension. Other than these there were no changes. Loss of knee-jerk, tactile sensation, and sexual desire persisted. After a six weeks' trial she ceased to return for suspension.

CASE VII. *Locomotor ataxia; second stage.*—Mrs. R. C., aged forty-nine; housewife. The following points were noted shortly prior to beginning suspension. Has had characteristic lightning-like pains for fifteen years, and for the past six years an ataxic gait; sensations of numbness from the waist downward; a girdle pain, and absent sexual desire. There were present very bad station; absent knee-jerk; decided tactile anæsthesia in the lower extremities, but normal temperature sense. There were Argyll-Robertson pupil and beginning atrophy

[1] Patient of Dr. E. P. Hershey's.

of the left optic nerve. Because of being light in weight, she was suspended by the head alone.

The duration of each suspension varied between three-quarters of a minute to four minutes. She was suspended in all ten times. At the visit for the fifth suspension it was noted that her gait and station had decidedly improved; she felt stronger physically, was in better spirits, and had little or no pain. After the sixth suspension the ataxia had lessened so considerably that she presented herself for the seventh suspension (the thirteenth day) walking entirely without support—for the first time in several years. The improvement in gait and station and the lessening in the pains were maintained; but at the date of the ninth suspension there was no return of knee-jerk, and tactile and sexual anæsthesia remained. The eye symptoms were unchanged. She complained of having trouble at home, and of being much overworked, and did not return for treatment after the tenth suspension—why, I am unaware, as she stated at the last visit that she was much gratified with the improvement.

CASE VIII. *Locomotor ataxia; second stage.*—Mrs. K. M., aged forty-five years; housework. The following symptoms were noted just prior to beginning suspension. Has had generalized neuralgiform pains for twelve years, with occasional lightning-like pains down the thighs. Has been somewhat ataxic for a number of years. There are decided static ataxia, absent knee-jerk, paræsthesiæ in the lower limbs, diminished and delayed tactile and temperature sense in the plantar surfaces, absent sexual desire, Argyll-Robertson pupil. She was suspended in all eight times, and then was forced to discontinue her visits because of contracting a severe cold. At the time of the last suspension the only improvement noticeable was in the ataxia. The walk was normal and there was far better station.

CASE IX. *Primary spastic paraplegia.*—Henry S. A., aged thirty-seven years; cake-baker. Eleven years ago there gradually appeared weakness in the lower limbs, with rigidity and tremors. For several years has been totally unable to walk without crutches. Immediately prior to beginning suspension it was noted that he could not walk more than a few steps with them. The gait was typically spastic and the limbs shook as he progressed from the clonus produced as the ball of each foot rested alternately on the floor. The lower limbs were rigid; the knee-jerk was much heightened, ankle clonus was very decided, and there was a general increase in the tendon and periosteal reactions. Sensation was normal; coördination, also, as far as it could be tested. There had been obstinate constipation for years, and, occasionally, rheumatoid arthritic pains.[1] No specific history.

Suspension was begun on February 25th and continued four times weekly until March 25th, when he returned to his home in Camden. Though compelled to depart, he was so unwilling to abandon a treatment which seemed to be productive of so much good that he purchased an apparatus and has suspended himself daily from March 26th.[1] Allowing for psychical effect—for he has become a decided enthusiast on the method—the improvement in his condition has been marked. The day following the second suspension he stated the limbs felt less stiff, their movements were freer and more under control, and that locomotion with the aid of crutches was less difficult; this at the time of the fourth suspension, was apparent to myself and others who then saw him. There were less spasm and rigidity and the gait had improved. Coldness of the feet had been constantly present before suspension was begun, but disappeared after the first hanging, and has not returned. He recently wrote to me, in reply to an inquiry as to his condition, that he had discarded his crutches and now goes about the house readily enough with the aid of two canes; that he stands without fear of falling, and that there is freer movement in the feet and less tremor and spasm in the limbs than there has been for ten years.

CASE X. *Primary spastic paraplegia.*—Geo. F., aged thirty-eight years; shop-keeper. Five years ago the lower limbs became gradually weak, easily fatigued, and were the seat of stiffness and occasional spasm. A typical spastic condition is present. The walk is spasmodic, the knee-jerk much exaggerated, and there is a decided ankle clonus. There are no disturbances of sensation or coördination. The pupils are normal. There is beginning atrophy of the right optic nerve. He had syphilis seventeen years ago. He has been suspended thirty-four times; method, duration, and intervals, the same as in Case I. There has been no decided improvement in his condition. After the seventh suspension he stated he had begun to feel in higher spirits and ate and slept better. He thought the limbs were not so weak and rigid as formerly. I, however, noticed no difference then, but, on examining him the day of the tenth suspension, there seemed less spasticity and his walk had improved, but the tendon reflexes continued exaggerated as before. Since then the improvement in gait has not been marked. There is now, however, much less fatigue felt in the legs than formerly and less tendency to spasm. The knee-jerk continues heightened, but the foot clonus is less easily elicited and is feebler.

CASE XI. *Primary spastic paraplegia.*—Samuel G., aged fifty-three years. A year ago there gradually developed weakness and heaviness in the legs and a tendency to jerking of the muscles. Several attacks of colic preceded the appearance of these symptoms. There is weakness in the legs on slight exertion and the gait is slightly spastic; the knee-jerk is increased and a clonus can be produced in the left ankle. Tactile sensation and coördination are unimpaired. There are no electrical changes and no specific history. There is atrophy of the left optic nerve. He was suspended thirty-four times; the method, duration, intervals, etc., were the same as in Case I. There has been no improvement in his condition, save that he has lost a feeling

[1] It is interesting to note that, when he first presented himself for treatment, one and a half years ago, and was under observation one week in the wards, his occupation and the eliciting of the last mentioned symptoms, caused me to suspect lead poisoning. His urine was then examined by Prof. Leffmann, who reported that it contained considerable lead.

[1] He has now had forty-five suspensions.

of nervousness and dread that was very prominent before suspension was begun. This disappeared in the second week.

CASE XII. *Combined lateral and posterior sclerosis.*—Henry S., aged forty years; shuttlemaker. He visited the clinic once, five years ago, in search of a diagnosis. The following points, with others, in his history, were then noticed: Staggering gait; left knee-jerk much increased; incoördination; cannot walk or stand without assistance; impaired grasp, both hands; shooting pains in the extremities; pruritus; constipation; incontinence of urine; normal tactile sense; double optic neuritis; loss of color sense; peripheral vision better than central; no specific history. He was recently invited to present himself for suspension. Additional points noted at the date of the first suspension are, that the first symptoms appeared ten years ago, and were those of combined lateral and posterior sclerosis. There is now present a spastic gait; inability to walk or stand unsupported; rigid limbs; much exaggerated knee-jerk; very decided ankle clonus; pronounced incoördination in both upper and lower extremities; normal tactile and temperature sense; unimpaired sexual power; chest pains; constipation; no bladder difficulty; advanced double optic atrophy and limitation of the visual field; pupils normal in size, and immobile. He received nine suspensions. At the time of the third suspension he felt decidedly stronger and better; limbs were more supple; had walked more in the two preceding days than for three or four years. The fourth and fifth suspensions caused severe pain in the back and limbs, and slight faintness. After the ninth suspension he abandoned the treatment, believing that the distance he was compelled to travel to be suspended overcame any benefit he received.

CASE XIII. *Combined lateral and posterior sclerosis.*—John S., aged thirty-one years; miner. Has had lightning-like pains in the extremities, more or less constantly, for three and a half years, and dull aching in the lumbar and sacral region. Motor weakness and incoördination in the legs, with stiffness and tremors, appeared shortly after the onset of the pains, and are increasing. He is unable to walk with closed eyes. The gait is slightly spastic. The leg muscles have dwindled. There is slight plantar anæsthesia and delay in the transmission of a tactile impression. The knee-jerk is very active; ankle clonus is pronounced. The arms are normal. There is no bladder or rectal trouble. Sexual power impaired. No specific history. He believes the disease was induced by constant exposure to wet cold. He was suspended six times, and then returned home. Subsequently, without my knowledge, he used suspension on alternate days for six weeks, and he now writes that he has but slight pains and that locomotion is "almost as good as ever."

CASE XIV. *Subacute dorso-lumbar meningo-myelitis.*—John B., aged twenty-nine; miner. In March, 1888, five weeks after a fall upon the buttocks, in which he felt himself much shaken, there appeared difficulty in locomotion; lancinating pains in the course of the ilio-hypogastric and ilio-inguinal nerves, and in the thighs, which continued constantly for several months. The pains were of great severity, and necessitated the frequent hypodermatic use of morphine for their relief. In August, the loss of power became absolute; he was then unable to walk, even with crutches. I saw him first on February 28, 1889, when he was brought to the hospital for treatment. There was then total paraplegia. He could not maintain the erect posture, though held by two men. The legs and thighs were somewhat wasted; a spastic condition was developing, and reaction of degeneration had appeared in the anterior thigh muscles. The spinous processes of the first and second lumbar vertebræ were decidedly tender on pressure, and the vertebral points below this were slightly so. There was marked diminution in tactile perception in the lower limbs; the two points of the æsthesiometer being felt as one at their greatest separation. Heat and cold applied to the plantar surfaces seemed equally hot, and the touch of a feather produced a burning sensation. A very faint plantar reflex was present, but no gluteal or cremasteric. Knee-jerk was just perceptible on the right; a trifle better on the left, but much enfeebled. A hot sponge drawn down the spine showed a hyperæsthetic zone in the lower dorsal region.

Suspension was begun on February 28th. The neck and shoulder straps were used. He was always drawn entirely from the floor, and the arms were raised and lowered at intervals, as in the other cases. The first suspension occupied one minute; the second three minutes; the fourth four and a half minutes; all the subsequent ones five minutes. He has now received thirty-one suspensions, and the improvement in the paraplegia has been remarkable. After the second suspension he was able to stand with crutches, and, at the time of the fourth, he got about the wards with their help, and, since April 1st (eighteen suspensions), he has been able to walk a short distance with the aid of one cane. The rigid condition of the limbs has lessened, and their nutrition is better. The tenderness over the lumbar vertebræ had entirely disappeared by the latter part of March. Pains occasionally appear in the interval of the suspensions in the course of the ilio-inguinal and ilio-hypogastric nerves, but are always dispersed by a suspension. The knee-jerks are somewhat more active than normal. The plantar reflex has improved; the gluteal and cremasteric remain absent. Anæsthesia in the plantar surfaces has lessened very materially.

The total number of suspensions made in these cases is upwards of 352. An extended analysis of the results obtained is unnecessary. It may be seen by a glance at the histories that, in the tabetics, the symptoms which were first and most strikingly relieved were the ataxia and the lancinating pains; improvement in these occurred in all,[1] and after a very few suspensions; and that, if any relation existed between the early appearance and extent of

[1] No pains were present in Case VIII. while under treatment by suspension.

the improvement and the duration of the disease, it is a direct one; the more chronic cases being those most promptly and decidedly benefited. The improvement in these two symptoms, the most prominent and distressing of the disease, in at least two of the cases (III. and VII.) was so prompt and decided that it may well be considered truly remarkable.

Bladder and rectal difficulty, present in two of the tabetics, and increased sexual desire present in one, have disappeared. Diminution in, or loss of, sexual desire, present in five, has improved in but one. Tactile anæsthesia has much improved in three and slightly in one; not at all in four. A somewhat melancholic condition, present in five of the tabetics, disappeared after a few suspensions. This was not due directly to the suspensions, but was rather secondary to the lessening of the pains and ataxia. In none of the eight has the knee-jerk returned, even with reinforcement.

In the three spastic cases, diminution in the paralysis, rigidity, and spasm has been striking in one and slight in another; in the third, no change has occurred in these symptoms.

In one of the ataxic paraplegic cases ataxia and paralysis seemed to be lessened after the second suspension. Unfortunately, this improvement was not maintained, possibly because suspension was not persevered in. The other case writes me that there has been marked improvement in gait and pains.

In the case of myelitis, the improvement in the paraplegia and in the general condition has been decided.

Eye symptoms, where present in the fourteen, have undergone no change.

As these cases are few in number, and have been under treatment by suspension but a comparatively short time, no very definite deductions can yet be drawn as to the exact value of this method in the treatment of degenerative and inflammatory diseases of the cord. It may, however, be safely asserted, from the favorable results obtained in nearly all of the tabetic cases, that suspension is of great service in locomotor ataxia, but, whether palliative merely or actually curative, the time has not arrived for definite reply. It is certainly of use in lateral sclerosis; and, in myelitis, the decided improvement produced in one case, in which absolute paraplegia had existed for over six months, commends its trial in others. That suspension will, even though aided by wisely directed medical and hygienic means, effect a cure in degenerative disease of the cord is, I think, doubtful; but, as an adjunct to other modes of treatment, its utility is beyond question.

The recent plausible explanation as to the action of suspension in tabes, offered by Althaus,[1] indicates that permanent benefit may result from this method, provided that the further progress of the disease can be arrested by other means, and that it has not advanced to complete destruction of the nerve tubules; and that, even where its advance cannot be thus stayed, temporary good may still be accomplished by suspension. Althaus's ingenious explanation applies equally to other degenerative diseases of the cord than tabes, and if it is true of the chronic degenerations, in which the pathological changes originate in the nerve elements and the overgrowth of connective tissue is secondary, it is, theoretically, far more so of inflammatory processes which, starting in the connective tissue, cause, primarily, at least, far less damage to the nerve tubules In chronic inflammations of the cord or its investing membranes which are stationary and are encountered before the contracting perineural tissue has, by compression, done more than interfere with the nutrition and conductivity of the fibres, not irreparably damaging their structure, the effect of suspension should be curative; for, by stretching the cord and the thickened and adherent membranes, the inflammatory tissue pressing upon the axis-cylinders will be loosened and broken down, setting free the latter and permitting them to resume their functions.

2610 NORTH FIFTH STREET, PHILADELPHIA.

[1] Lancet, April 13, 1889.

TWENTY CONSECUTIVE CASES OF ABDOMINAL SECTION, WITH ONE DEATH.[1]

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THIS paper embraces the report of twenty abdominal sections taken from the surgical experience of the writer, and are reported simply as a basis for some general remarks on this class of surgery. The cases are taken consecutively, and include the only death I have as yet met with. No case has been refused for operation where there seemed a possible chance for life, and several of them were in such a condition that this chance seemed very small indeed. The general mortality is fully as low as that obtained by Lawson Tait, as reported in his last one thousand cases. Of the operations themselves I have little to say. They have been neither harder nor easier than those of a similar character done by other operators. The fact becomes daily more and more apparent to me, that all abdominal operations, with complications, are difficult; in fact, each new one seems more difficult and delicate than the last. It is impossible to lay down any definite rule of procedure in any class of cases, for the reason that no two are alike; it is simply surprising to find how differently even two apparently similar cases will result. At

[1] Read before the Philadelphia County Medical Society, May 22, 1889.

times one has need of all his courage and skill, to meet the requirements and complications of the case.

Seventeen of the list were complicated by adhesions, more or less dense, and the difficulty, nay, almost impossibility at times of breaking these adhesions, have convinced me of the folly of even attempting to cure such cases by either electricity or massage. In some cases, the electricity would have destroyed the surrounding tissues much sooner than it would have even made an impression on the adhesions themselves, so extensive, dense, and organized were they. It is simple unadulterated nonsense to tell me that I could have done with safety, through the thickness of the tissues of the abdominal wall and vagina, that which I was barely able to do with my fingers directly on the disease, and the patient fully anæsthetized; and massage, if carried to the extent advocated by some of its votaries, loses even the merit of being harmless, but becomes extremely dangerous. If the patients of the gentlemen who use this remedy (or say they do) will submit to the pain necessarily incident to this treatment, they must be dealing with a much less serious type of cases than it has been my fortune to handle.

In eleven of these cases I have used the drainage tube; nor in any case have I ever regretted its use. On several other occasions I should have used it, but that the after-treatment was conducted by another than myself, the patient residing in the country. In one case the tube was accidentally displaced by the patient, before she was completely from under the influence of the anæsthetic. In this case the adhesions and hemorrhage had been particularly severe, and I was considerably worried over its loss for several days; the convalescence progressed, however, with out any incident worthy of note. I have since then several times done without a tube and depended on purgatives for drainage, with a greater ease of mind, especially in the out-of-town cases. Irrigation with boiled distilled water, and when that has become exhausted, simple boiled water, has been a constant resource and of the utmost benefit. There is absolutely nothing which will take its place for cleaning the abdominal cavity of clots and débris, as well as for its stimulating effect upon the patient. Of late, however, two surgeons have expressed the opinion that the flushing is decidedly dangerous, and base that opinion, each upon one case. Both the patients died after the operation in which warm-water irrigation had been used. The rest of the profession seem to be unanimous in the opinion that irrigation is safe and beneficial.

In the fatal case of M. Polaillon, a French surgeon:

"The patient *took chloroform badly*, the excited stage was long and she readily came to, though plenty of chloroform, out of a new bottle, was administered on a piece of lint. He employed distilled water, previously boiled, and containing one part of *carbolic acid* to a hundred.

"During the flushing, respiration became rapid, then grew feeble and ceased; the face became blue. The heart continued to beat regularly. The alarming symptoms began at a quarter past ten o'clock. Artificial respiration was continued till eleven. Then a few feeble respirations began, and continued for a quarter of an hour; the pupils were then half contracted. The heart beat regularly and quickly. The patient continued unconscious. In spite of stimulants, spontaneous respiration could not be permanently maintained. Phlebotomy resulted in the escape of a few drops of very dark blood from the left arm. Gradually the heart's action became more and more feeble, the face grew pale, flatus escaped from the anus, and the pupils dilated. She was thirty-five minutes under chloroform, and about an ounce and a half of the anæsthetic had been used."

Of course, the case died of the chloroform; the history is too complete to admit of any other interpretation, nor do I think for a moment that any one but the operator could think otherwise.

The second case was a patient of Dr. Weir, of New York. Of this case, Dr. Jacobus says:

"How the death of this patient can be, even indirectly, attributed to hot douching, I cannot understand, for it was a case of recurring appendicitis, with several perforations, general peritonitis and partial collapse, operated upon on the fifth day, after having been treated by other physicians, then removed to a hospital and examined under ether, the day previous to the operation."

This is the flimsy evidence on which the objection to irrigation is founded. If surgeons will overdose their patients with chloroform or wait until the eleventh hour to operate, they must expect them to die. I have repeatedly flushed the abdomen to the diaphragm and have yet to see anything but good results. My observations and inquiries amongst my friends have disclosed the same experience without an exception.

A number of these cases were confined to bed with a peritonitis at the time of the operation. All sorts of complications have been met with. In three cases the vermiform appendix had to be freed and then removed on account of its diseased condition. In one, when torn loose, it was found perforated in two places; the appendix was simply ligated and cut away. In none of these cases did any unpleasant symptom arise from this procedure.

The patients have for the most part been operated on at their own homes and in several instances were nursed by their friends. This has, of course, necessitated an enormous amount of extra work for myself; but otherwise they would not have been operated on, having absolutely refused to go to a hospital. The result only helps to emphasize the fact that hospitals are more luxuries than necessities for these operations, notwithstanding the opinion of some operators to the contrary.

In two of these cases there have resulted ventral hernias. In three fistula tracks have followed. A

ligature has recently come away from one of these fistulas and it will now probably close. The other two fistula tracks both followed supra-vaginal hysterectomies.

The after-treatment has been practically, in many cases, nothing. Unless special indications arise they recover without having had a single dose of medicine, excepting sulphate of magnesium, which is generally given on the third day. Until the third day they get nothing to eat. Solid food is given by the fourth or fifth day, if they wish it. If thirst is great, it is relieved by rectal injections, at intervals, of about half a pint of warm water; otherwise tablespoonfuls of soda water are depended on. Opium I have never used and never expect to.

The simpler the details of the operation the better. In ordinary cases my whole armamentarium consists of two ligature needles, two or three suture needles, a knife, a pair of scissors, a sponge-holder, half a dozen hæmostatic forceps, a drainage and an irrigating tube. Pure silk is used both for ligatures and sutures. The dressing consists of a few strips of gauze, a pad of absorbent cotton and a six-tailed bandage. My bag stands near by and contains all other necessary instruments, but it is exceedingly rare that I have to resort to them. The less work done with instruments and the more with the fingers the safer it is for the patient. One often sees operators with six, eight, or even ten pairs of forceps hanging to the sides of the incision. These instruments are not at all desirable and where it is necessary to use them to control hemorrhage, they can safely be removed by the time the peritoneum is opened. It is exceptional that I have a single pair hanging to the vessels when my fingers enter the peritoneal cavity. They crush and bruise the tissues and only tend to prevent good union. In all the details of the preparation for the operation and of the operation itself, the most perfect and rigid attempts at cleanliness have been observed. All instruments, sponges, dressings, etc., used about an operation are prepared by myself, when possible.

It is daily becoming more apparent that inexperienced and untrained men should not be tempted lightly to enter into the abdominal operation. An alarmingly large number of operations have lately come to my notice, by men who have presumably never attempted the procedure before, and who have been assisted by men equally inexperienced and incapable of dealing with possible complications. A considerable number of these cases have, of course, ended fatally—cases which should have all recovered had a skilled operator undertaken them. I do not mean to say that a physician with only a limited experience should never attempt an abdominal operation, because I am very decidedly of the opinion that every surgeon in the land should be prepared in an emergency to open the abdominal cavity and attempt to deal with what he finds. Our country is so large, and the different settlements and towns so wide apart, that it is an impossibility always to obtain skilled assistance; even where it could be obtained there are times when physicians have no moral right to wait long enough for its arrival. If a tubal pregnancy has ruptured and the patient is bleeding to death, that belly should be opened at once, and by the first man with any respectable amount of surgical experience who may first see the patient. Any physician attending a case of labor, perhaps in the country, may meet with a ruptured uterus, and will give his patient a much better chance for life if he open the abdomen immediately. And so it is with many cases of intestinal obstruction, gunshot and stab wounds. A delay of even a few hours in these cases is responsible for their terrible mortality, and it would be better for any one with good general surgical judgment and skill to open the abdomen, than to leave it unopened or even to delay. It is full time that members of the profession had learned the importance of this and realized their own individual responsibility in allowing such patients to die, without an effort to save them.

But excepting as an emergency and life-saving procedure, I am just as decidedly of the opinion that men without special experience should never open the abdominal cavity, both for their patient's sake and for that of their own reputation. If a simple ovarian cyst is found the operation is easy enough and any tyro could finish it successfully; but just as surely as serious complications are met with both the patient and doctor are in trouble.

I may mention some of the more recent cases of which I am cognizant, which will serve to illustrate some of the points.

CASE I.—A young married woman with a good-sized cystic tumor of the abdomen; in good general health; within one hour's ride of Philadelphia. Operation undertaken by several young men, but without even a good knowledge of general surgery. A long time was wasted in obtaining entrance into the peritoneal cavity. The cyst was found adherent and adhesions bled on being freed. Operation lasted over two hours, and finally ended by leaving it only half finished, with part of the cyst *in situ*. Death on the following day.

CASE II.—Young healthy married woman with cystic disease of abdomen. Operator's first case. Cyst adherent. Bleeding profuse, and large hæmostatics plunged blindly into pelvis in hopes of controlling it. Operation over three hours. Death in a few days.

CASE III.—Young healthy married woman. Unruptured tubal pregnancy diagnosed. Patient lived in a town which could have been reached in a short time by an expert. The ambitious attendant put the woman to bed, took several days to prepare for the operation, and together with four friends opened the abdomen. Operation lasted for five hours; not finished; patient bled to death on the table.

This is the only case of tubal pregnancy I have ever known to be killed by an operation. I could relate many more equally as distressing, but these

cases tell all that is necessary and will justify the remarks I have already made.

There are two complications in abdominal surgery constantly met with, and in dealing with which men show their skill and judgment or display their total unfitness for such work: these are adhesions and hemorrhage. They are, moreover, constant companions; where there are adhesions to be dealt with, there is also nearly always, of necessity, bleeding. Adhesions are not things to be blindly torn loose. In dealing with them, the utmost care and judgment must be constantly exercised, and the almost instinctive knowledge of when to break and when to ligate them, must be ever present. Nor are adhesions things to be afraid of. It matters not how dense they are, it is exceptional that they cannot be successfully disposed of. The man who loses his head and becomes frightened because of tight adhesions, had better never attempt this class of surgery, as they are almost sure to be met with in greater or less degree.

A careful survey of the whole field should first be taken by the surgeon, for the most part with his fingers, and a decision carefully arrived at as to whether or not it will be possible and safe to remove the disease. The decision once made in the affirmative and the enucleation once begun, it should never, but under very exceptional circumstances, be stopped. The worse results obtained in abdominal surgery are in these unfinished operations. The great danger of this half work was sounded some years ago by Lawson Tait, and is to-day accepted as sound teaching by all who have a right to an opinion on the subject. There is constant danger attending the breaking up of adhesions. One may at any time open an intestine and have the question of a resection to decide; a ureter may be torn out at any moment and a nephrectomy must of

No.	Pathological condition or symptoms.	Drainage.	Adhesions.	Result.	Effect of operation.	Remarks.
1	Pelvic inflammatory disease; ovarian cyst.	No.	Dense and universal.	Recovery.	Great relief from symptoms.	Adhesions so great that it was impossible to reach pelvis; nothing removed. Ventral hernia.
2	Constant local pain; convulsions during menstruation; impossible coition from pain; chronic salpingitis; small cirrhotic ovaries.	No.	Yes.	Recovery.	Only gradual relief; not yet complete; convulsions seldom; coition possible and easy.	From being a chronic almost bedridden invalid, is now able to attend to her household and marital duties.
3	Left puerperal pyosalpinx.	Yes.	Dense and universal	Recovery.	Cure.	First case of the kind ever operated on in which life was saved.
4	Pyosalpinx.	Yes.	Universal and dense	Recovery.	Cure.	Three weeks in bed with peritonitis; disease seven years' standing.
5	Cirrhotic ovaries, prolapsed and adherent.	No.	Yes.	Recovery.	Cure.	Relief gradual but complete; convulsive attacks, which were cured.
6	Ovarian cyst; retro-peritoneal cyst; enlarged cirrhotic ovary.	No.	Yes.	Recovery.	Pelvic abscess.	Fourth day walked to kitchen and ate her dinner, sitting at table; out of bed frequently.
7	Pelvic abscess.	Yes.	Yes.	Recovery.	Cure.	Ventral hernia.
8	Fibroid uterus; enormous distention from ascites; hysterectomy, extra-peritoneal.	Yes.	No.	Recovery.	Cure.	Fistula track; ventral hernia; had been tapped eight times.
9	Ovarian cyst; ventral hernia.	No.	No.	Recovery.	Purulent peritonitis.	
10	Purulent peritonitis.	Yes.	Yes.	Death.	.....	Same as Case 9. Lived six days. An earlier operation would have saved her.
11	Double pyosalpinx.	Yes.	Dense and universal.	Recovery.	Cure.	Almost died of hemorrhage on the table.
12	Right pyosalpinx and ovarian abscess; left hæmatocele.	Yes.	Universal.	Recovery.	Cure	Peritonitis at time of operation.
13	Prolapsed and adherent ovaries, four times natural size.	No.	Yes.	Recovery.	Cure.	For a few months complete cure; lately some pain, probably from adhesions.
14	Fibro-cystic uterus; supra vaginal hysterectomy.	Yes.	No.	Recovery.	Cure.	Fistula track; had been diagnosed and treated for hernia.
15	Extra-uterine pregnancy.	Yes.	Universal.	Recovery.	Abscess.	Of a month's rupture and commencing gangrene.
16	Multiple abscesses.	Yes.	Yes.	Recovery.	Cure.	Fistula track; ligature recently came away, and track will probably close
17	Left ovarian cyst; right pyosalpinx and ovarian abscess.	Yes.	Universal but light.	Recovery.	Cure.	Had severe attack of peritonitis during convalescence.
18	Right ovarian cyst; left cirrhotic ovary	No.	Yes.	Recovery.	Cure.	Peritonitis at time of operation.
19	Ovaries greatly enlarged, prolapsed, adherent, and painful.	No.	Yes.	Recovery.	Cure.	Inversion of uterus had been reduced, but constantly tended to re-invert; operation to correct this tendency.
20	Pyosalpinx and chronic salpingitis.	No.	Yes.	Recovery.	Cure.	Right tube adherent to uterus from over fundus to vaginal vault.

necessity follow. I have known of the whole circumference of the sigmoid flexure of the bowel being torn away and a closure of the two ends of the gut necessitated; often the coats of the intestine are torn away down to the mucous lining, and a perforation may occur some days subsequently. The bladder has been opened a great number of times. With these dangers ahead, it can readily be seen why untrained men should keep their hands off, unless absolutely necessary.

In addition to all this, bleeding is constant, as I have said, and may be of two kinds, either venous or arterial. Fortunately, the vast majority of it is simply venous or a general oozing. Where an artery of any size is torn, is must be at once secured and ligated, but otherwise the bleeding had better be left alone or controlled by skilful handling of sponges; it will not be often that this cannot be done. But whether controlled in this manner or not, there is no time to be wasted over it. The very best chance of stopping it is to finish the enucleation quickly and apply the ligature to the pedicle, then there is time and room enough to deal with what may be left, which does not often amount to much. It has lately been proposed and found necessary to throw a ligature around the uterine artery on each side, by passing a threaded needle deep through the sides of the uterus and thus include the artery. I have never seen a case where I even had to think of this procedure, and I have seen some very free bleeding; surely it would take very rough and careless handling often to necessitate a resort to it. However, an uncontrollable case may at times occur, and it is a point well worth bearing in mind. Often the mere bringing together of torn peritoneal edges over a denuded and bleeding surface is sufficient to control an otherwise troublesome point. Much of it may safely be left to the drainage tube. I never like to use styptics when it can be avoided. It is the premature attempt to control bleeding which is often so disastrous. Men find a pretty free flow of blood, and, not being accustomed to it, become frightened and stop everything in the endeavor to control it. This they find oftentimes impossible; the indication then is to finish quickly and stop the bleeding at its root. The pedicle ligature will stop it all, or what is still left is not alarming. Had such been the course pursued in the tubal pregnancy case mentioned, the operation would most probably have been finished and the patient survived. The one redeeming feature of that case is, that the same men and their friends will never be tempted into another such operation; but, unfortunately, the woman's friends and acquaintances will also never be tempted into one. And so indirectly that one case will probably be responsible for the death of half a dozen or more others, who might be saved did they not refuse assistance.

Abdominal surgery, of necessity, has enough legitimate deaths to answer for, without being loaded down by such unnecessary and frightful examples.

Note.—Since the above was written I have had a patient die of apoplexy, on the seventeenth day after operation. The case was one of intra-ligamentous papillomatous cyst. Second operation. Had done well from the first. Small quantity of pus from tube. Tube had been perfectly dry and clean for some days, pulse and temperature normal. Said she never felt better in her life. Had slept soundly all night, ate a good breakfast and was talking and joking with nurse when she suddenly had a convulsion; became unconscious and died within twenty minutes. Post-mortem revealed a calcareous condition of the mitral valves of the heart. At the bifurcation of two vessels in the fourth ventricle, a piece of the calcareous plate was found lodged, one of the vessels was ruptured and the ventricle half full of blood-clot. Everything else in the body was healthy. A full report of the case will be shortly published. Of course, I do not consider this a death from operation, but have thought it proper to speak of it in connection with this paper.

328 South Seventeenth Street.

MEDICAL PROGRESS.

Excision of the Cæcum.—At the Surgical Congress of Bologna, Prof. Durante related a case in which he had removed the cæcum, an operation which he said had been performed only twice before, namely, by Lawson Tait and Billroth. The patient was a woman aged fifty-six, who for four or five years had suffered from obscure pain in the right iliac fossa when at stool. The pain increased in intensity and became paroxysmal, and the patient almost starved herself with the object of sparing herself the torture of defecation. On examination, a resisting tumor was found in the right iliac fossa, extending downward toward the upper outlet of the pelvis. It was only painful during the passage of feces. Cancer of the cæcum or the neighboring parts was suspected, and the abdomen was opened. The tumor, which was as large as a lemon, was found adherent to the iliac fossa, the parietal peritoneum and coils of the small intestine being matted to it so firmly that the lower end of the latter, measuring 25 centimetres in length, together with the cæcum and a portion of the ascending colon, was removed with it. The two ends of the divided intestine were brought together by three rows of suture, namely, an interrupted one through the mucous coat, a hemstitch one through the serous and muscular coats, and a third through the serous coat. The abdominal wound was stitched up, and the patient rapidly recovered without rise of temperature. On the seventh day she had a motion of the bowels without any trouble, and on the tenth day she got up. She has continued ever since in perfect health. The tumor, which had almost completely blocked up the intestine, was found to be of tubercular nature.

Dr. Trombetta said he had published an almost exactly similar case. There was stenosis of the intestine,

caused apparently by a tumor; he had, therefore, removed the cæcum with the ascending colon and a portion of the small gut, and made an artificial anus. The patient died on the fourteenth day from rupture of the intestine with fecal extravasation. The case proved to be one of typhlitis and perityphlitis, with small abscesses.

DR. BASSINI related a case in which he had removed the cæcum with a portion of the small gut, and from eight to nine centimetres of the ascending colon from a girl aged 22 or 23 for adenoma. Rapid recovery took place.—*The British Med. Journal*, May 4, 1889.

Creolin as an Antiseptic.—Creolin is being actively discussed on the continent at present, as well as in this country. Whether it will stand the test of the rigid examinations to which it is being subjected, remains yet to be seen. The main point of discussion is whether creolin is an antiseptic or not. German authorities seem specially interested, and their opinions are quoted at length in many medical journals.

DR. P. BAUMGARTEN (*Centralbl. f. Bact.*, vol. v., No. 4, 1889) states that he has found it to be a strong animal poison and also an antiseptic, yet only in solutions of a strength that would be fatal to animal life.

DR. BEHRING (*Deutsche militärerztl. Zeitschrift*, 1889, p. 337) comes to the conclusion that creolin possesses antiseptic properties three or four times as weak as those of carbolic acid in solutions of similar strength. A two per cent. solution of creolin will not disinfect wounds. The drug is not so poisonous as carbolic acid.

DR. EISENBERG states that he has found two per cent. to five per cent. solutions of creolin to be powerfully antiseptic; killing almost immediately streptococci, staphylococci, cholera bacilli, and other bacteria. He prophesies a brilliant future for the drug. SEIDEL and HÖRNICKE agree with EISENBERG, and consider ten per cent. creolin gauze or cotton to be an admirable substitute for bichloride gauze. The former preparations may now be purchased in the German market.

HÜNERMANN, as the result of a long series of investigations, states that creolin has no right among antiseptics. It undoubtedly retards and in some cases even prevents the further growth of bacteria, but does not ill them. Koch's experiments have proved that the oil of mustard in weak solutions may hinder the growth of bacteria, yet no one would for a moment regard it in the light of an antiseptic, yet this, he claims, is what is being done with creolin.

DR. KORTÜRN (*Centralbl. f. Gynäk.*, No. 6, 1889) and DR. BUNSEN have tried the drug in obstetrics, and say that they have found it a most admirable antiseptic. They claim that it is not so irritating as carbolic acid, and that it also possesses styptic properties. Kortürn uses wet creolin gauze exclusively for plugging the uterine cavity in cases of severe hemorrhage. For washing the vagina, Bunsen uses only a one-half per cent. solution. He states also that a two per cent. solution immediately kills pediculi pubis.

DR. RAUSCHE (*Deutsche med. Wochenschrift*, April 25, 1889) highly lauds the deodorizing properties of creolin and uses it as an application for burns, superficial wounds, etc. He also advocates its use in the form of creolin soap, for cleansing and deodorizing the hands after operations.

DRS. AMON and PRUTSCHER have used a weak solution of creolin in optic and aural surgery to great advantage.

PURJESZ (*Pester med.-chir. Presse*, No. 11, 1889) treated several cases of suppurative inflammation of the tympanic cavity with creolin with marked success, using five or six drops of pure creolin in a pint of water as a wash. Otitis media was also treated in the same manner with success.

SPÄTH, PIESKOFF, and others, have used it advantageously in diseases of the throat, nose, and larynx, either in the form of powder of varying strengths, or in glycerine, or as a wash in the following formula:

℞.—Creolin	1 part.
Menthol	1 "
Water	500 parts.

Extirpation of the Uterus for Cancer in France.—Views on the treatment of uterine cancer are much divided in this country and Germany. A discussion on the subject has recently taken place at Lyons before the *Société Nationale de Médecine*. DR. DUCHAMP, like Dr. John Williams and unlike most of the German authorities, finds that uterine cancer tends to spread toward the broad ligaments, and not along the endometrium, recurrence after supravaginal amputation of the cervix taking place not in the uterine stump, but in the broad ligament and adjacent connective tissue. This theory is made by the above-named English authority to justify supravaginal amputation in preference to total extirpation.

Dr. Duchamp, of Lyons, on the other hand, begins supravaginal amputation of the cervix as an exploratory operation. In the *Lyon Médical* he states that when the cancerous infiltration has passed beyond the vaginal portion of the cervix, he sets the entire cervix free by dissecting it away from the bladder as high as the level of the utero-vesical pouch, which serous fold, he finds, is "easy to recognize." Then he cuts through the cervix at the same level. When the cut surface appears healthy, he limits the operation to a supravaginal amputation of the cervix. On the contrary, should the wound on the proximal part of the cervix or the cervical canal appear infected, he performs total extirpation of the uterus through the vagina. Dr. Duchamp's four cases, where he extirpated the uterus on the above principles, all recovered from the operation. He admits, however, that in two the broad ligaments were invaded, and the radical procedure was undertaken too late. The first case lived for six months; one ureter had been included in a ligature, ureteric stricture resulted, and the patient died of uræmic convulsions. The three remaining cases were all subjected to operations within five months of the publication of Dr. Duchamp's paper, so no conclusions respecting recurrence can yet be drawn from them.—*The British Med. Journal*, May 4, 1889.

Treatment of Diphtheria.—DR. RENVERS, one of Leyden's assistants, gives the following outline as his usual treatment of diphtheria:

1. Antiseptic washing and disinfection of the mouth and throat every two or three hours. Ice pills may be given, and inhalations are also of value.

2. Little or no medicine need be given internally, and even when high fever exists the use of antipyretics is to be avoided.

3. Complete rest is indispensable to the patient. Constant washing of the mouth and long gargling are only weakening and of little value.

4. Morphine, if used with caution, will be found invaluable. No other drug seems to quiet the patient so quickly and give such refreshing and strengthening sleep. The dose used should always be small, varying from one-twentieth to one-sixth of a grain.

5. The nourishment of the patient is of special importance. If there be any difficulty in swallowing, or if the patient refuses food, artificial feeding should at once be resorted to. The diet should be strong, consisting of half pint of milk, three times a day, together with the yolk of two or three eggs, an ounce of sugar, and about three ounces of sherry wine.—*Münchener med. Wochenschrift*, April 23, 1889.

Salicylate of Mercury in Blennorrhagia.—PROF. SCHWIMMER (*Wien. med. Wochenschr.*, No. 8, 1889) has met with great success in treating blennorrhagia, both acute and chronic, with injections of salicylate of mercury. He suggests the following formulæ:

1. In acute blennorrhagia,

℞.—Dist. water . . . . ℥iijss.
Salicylate of mercury . . $\frac{1}{6}$ grain.—M.

Three injections should be made daily, and the treatment continued for two or three days, in about which time the discharge will cease.

2. In chronic blennorrhagia a stronger solution can be used:

℞.—Water . . . . . ℥iijss.
Salicylate of mercury . . ¼ grain.—M.

In chronic cases the treatment should extend over a period of six or seven days, and in some stubborn cases even this is not sufficient. The solution has no irritative properties.—*Journal de Méd. de Paris*, April 21, 1889.

Surgical Treatment of Tubercular Peritonitis.—PROF. CECCHERELLI, in a paper read before the Surgical Congress at Bologna, described four cases of tubercular peritonitis in which he had performed laparotomy, washed out the peritoneal cavity with a solution of thymol, and powdered it with iodoform. In the first, a woman, aged twenty-eight, who, after suckling her fifth child, began to suffer from loss of appetite and swelling of the abdomen, the surface of the peritoneum was found reddened, œdematous, and studded with tubercles, whilst the cavity contained a large amount of fluid. Up to the date of the report (six months after the operation) she had remained well.

The second case was that of a boy, aged eleven, in whom slowly increasing ascites was the only symptom. The peritoneum was covered with tubercles. The operation got rid of the ascites, but a month later it had collected again, and laparotomy was done a second time with some benefit as regards the ascites; there were, however, signs of consolidation at one apex.

In the third case, that of a boy of thirteen, numerous firm adhesions infiltrated with tubercles were found; there was some improvement when he left the hospital, but a month later the belly had enlarged, there was dulness in the iliac region, and a feeling of hardness and resistance on palpation.

The fourth case was that of a girl aged eight, who had been ill for only a month, and who had dulness and harsh breathing at the right apex. The peritoneum showed thickened adhesions infiltrated with tubercles. Cultivation experiments gave negative results in this case as well as in the third, but in all the cases the specific microbe was seen with the microscope.

Prof. Ceccherelli thought the second case especially important, as the condition of the peritoneum found at the second operation showed the manner in which cure took place. Whilst the pieces of peritoneum removed in the first operation were studded both superficially and deeply with innumerable tubercles, those taken away at the second laparotomy showed none at all in some places, and in others the tubercles were surrounded by a covering of connective tissue of recent formation. Up to the present time, abdominal section for tubercular peritonitis had been performed by various operators in 88 cases with 52 cures and 25 deaths, whilst in 6 there was some improvement, and in five the result was unknown. Rabbits inoculated with the mesenteric glands of persons who had died of tubercular peritonitis developed purulent peritonitis, whilst the introduction of shreds of peritoneum obtained by laparotomy caused death in some rabbits. Prof. Ceccherelli had made a series of such experiments, and in all the rabbits on which he had succeeded in producing tubercular peritonitis he had performed laparotomy; the result would be published when the series was complete.

His present experience led him to the following conclusions: There are two forms of tubercular peritonitis, the dry and the ascitic. In the former case laparotomy is useless, because, owing to adhesions which it would be unsafe to break down, the peritoneal cavity cannot be explored. In the ascitic form of the disease laparotomy is of service, as it allows the cavity to be emptied, and excites adhesive peritonitis with fibrous transformation of the tubercles. Prof. Ceccherelli's views found little favor with his audience, Prof. Durante expressing the belief that whatever benefit was produced was merely temporary, and Drs. Bassini and A. Ferrari citing cases within their own knowledge in which patients had died of pulmonary phthisis from six months to two years after laparotomy.—*The British Med. Journal*, May 4, 1889.

Treatment of Tubercular Processes with Balsam of Peru.—PROF. ALBERT, in a lecture delivered before a medical society in Munich, spoke most highly of the efficacy of balsam of Peru as an application after operations for local tuberculosis. In all cases in which it was applied to the wound, healing was effected by first intention, and the tuberculous process was checked. In two cases, however, the action of the drug on the kidneys was decidedly unfavorable, it producing nephritis. Albert lays great weight upon using only the pure drug; many impure articles, he says, are brought into commerce under the same name.—*Münchener med. Wochenschrift*, April 16, 1889.

The Treatment of Chapped Nipples.—At University College Hospital, London, the favorite remedy for chapped and sore nipples is glycerine of tannin and sulphurous acid, each half an ounce, with one ounce of water.—*The British Med. Journal*, May 11, 1889.

THE MEDICAL NEWS.

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SATURDAY, JUNE 1, 1889.

THE TREATMENT OF HYDROCELE.

SEVERAL years ago it was thought that the treatment of hydrocele of the tunica vaginalis had been settled: that the best palliative treatment was simple aseptic tapping or aspiration; that the most safe and successful of the non-operative attempts at radical cure by obliteration of the sac was to be found in the injection into its cavity of iodine; and that absolutely safe and certain permanent cure could always be obtained by strictly aseptic incision and prolonged drainage.

That tapping is the best palliative measure still remains unquestioned, but not so with the other methods which we have mentioned, for Levis has urged the substitution of carbolic acid for iodine, and many operators have condemned the open drainage method from its infective risks, whilst others have strenuously urged the excision of the sac in all cases.

Of those who have made clinical comparisons of the various methods for the radical cure of hydrocele, probably none has exceeded in experience PROF. HELFERICH, of Greifswald. He, after experimenting on a very large scale, has (*Therapeut. Monatshefte*, Heft 3, 1889) returned to the above-mentioned tenets, which, as we have already said, several years ago were maintained by those most competent to judge.

Helferich at first had remarkably good results with the Levis method, but larger experience has made him change this view, for he has found iodine, though more painful than carbolic acid, decidedly more certain in effect, more speedy in point of return of the parts to natural condition, and less often followed by undesirable consequences.

Aseptic drainage is thought by him to be practically safe in the hands of an intelligent surgeon, and under these circumstances invariably certain. Bad results and relapses are not uncommon, it is true, but should we abandon all things which in ignorant hands may prove unfortunate, if, when applied by those who are competent, they are invariably followed by excellent result?

Nancrede has recently reported (MEDICAL NEWS, May 18, 1889) two cases, one from his own practice and one from that of Dr. J. M. Barton, of this city, in both of which, after failure of the iodine injection method, incision and drainage were performed and a small cartilage-like concretion found floating free in the sac. As Nancrede pointed out, these loose bodies in the cavity or wall of the tunica vaginalis are considered great rarities, but he offers the tentative theory that perhaps they are by no means so rare as we now imagine, and that possibly they are responsible for some of the failures met with by the injection method. The cases reported by Nancrede were afflicted with violent pains in the testicles when in a standing position, but these in both disappeared after the incision, finding and removal of the loose body, drainage, and subsequent absolute cure of the hydrocele.

The possibility of these bodies being present, especially when the injection method has failed and when pain in the testicles is complained of, offers another indication for incision and drainage; also an imperative reason for carefully exploring the tunica vaginalis in all cases so operated upon.

Excision of the sac, we are glad to find, is condemned by Helferich. It is an unnecessary and unsurgical procedure; accomplishing results no better, and often not even so good as simple drainage, and is attended with many risks not otherwise encountered.

MR. MORRIS (*Proc. Royal Med. and Chir. Soc. of London*, 1885–88, ii. 342) also has recently taken occasion to criticise unfavorably the operation of excision of the hydrocele sac.

The former status of the treatment of hydrocele may, therefore, be said to have remained unchanged by the large amount of clinical experimentation which during the past few years has taken place,

and that the spirit of the surgical world is that (1) aseptic tapping is the best palliative measure; (2) iodine injection is the most reliable non-cutting radical treatment; (3) aseptic incision with drainage is an invariably certain and safe procedure, and always to be preferred where choice lies with the surgeon.

THE PREVENTION OF DIPHTHERIA.

ONE of the most important practical bearings of modern bacteriological study is upon the subject of the prophylaxis of disease. Definite knowledge of the nature and biological characteristics of the exciting cause of any infectious disease enables us to direct our efforts at its prevention intelligently; we must destroy the specific microörganism involved. Our knowledge of the exciting cause of cholera, tuberculosis, and typhoid fever thus enables us to combat the spread of these diseases with a directness of purpose and assurance of success formerly quite impossible.

PRUDDEN'S careful investigation into the cause of diphtheria, the results of which have appeared in *The American Journal of the Medical Sciences* for April and May of this year, has added another to the list of diseases of which it may be said that the specific cause is known. We now know the exciting cause of diphtheria to be the streptococcus diphtheriæ, we know what will kill this germ, and its destruction is the definite end to be attained if we are to prevent the spread of the disease.

One of the greatest obstacles to real progress in the prevention of disease in this country is the persistence with which inefficient methods of disinfection are adhered to. The old sulphur fumigation is an example of this. So long as its use is advocated by our health officers it must be in vain that rational measures are recommended. The ease of its employment, coupled with the popular belief that it is all-efficient, makes it almost impossible that methods more difficult of application, though of established efficiency, should be introduced while its use is continued. It has repeatedly been shown that sulphurous acid gas does not destroy *all* germs, and Prudden has repeated the proof of its inefficiency so far as regards the specific microörganism of diphtheria. Notwithstanding all this, the New York State Board of Health, in a bulletin issued last week in regard to the prevention of diphtheria, places its main reliance on sulphur fumigation.

If we are to combat successfully the dissemination of disease, we must use only such means as are of known efficiency. All germs in each case must be destroyed. The prevention of each disease is a special problem, but we are, fortunately, in possession of two germicides which have thus far been shown to be efficient—carbolic acid and corrosive sublimate. These are unquestionably more difficult of employment than sulphur fumigation, but, while this may be regretted, it should not be an obstacle to the use of the more efficient agents, as fully described by Prudden in the article above referred to.

MIXED ANÆSTHESIA.

THE method of producing insensibility by the conjoint administration of narcotics and anæsthetics has been before the profession for a quarter of a century, but has never come into general use. It was originally recommended by Bernard, who found by experiment on animals, and his conclusions were subsequently confirmed on man, that when the administration of the narcotic preceded by some little time that of the anæsthetic, the amount of the anæsthetic required is less, that there is far less excitement attending the inhalation, and that there is less vomiting afterward. The narcotic, moreover, antagonizes the paralyzing action of the anæsthetic on the cardiac and respiratory centres and prevents subsequent shock.

In this country the mixed method was advocated by Dr. J. C. Reeve as early as 1876 (*American Journal of the Medical Sciences*), but it has never, neither here nor abroad, received the appreciation or attracted the attention it deserves. MR. ERNEST HART, in some recent notes on "Medical Paris" (*British Med. Journal*, May 11, 1889), states that for the last ten years the method has been used at the Sorbonne in anæsthetizing animals for experimentation, and without a single accident, whereas with the ordinary method the mortality from chloroform was one animal in three, and sometimes even greater.

The mixed method, as generally used in the human being, consists in injecting hypodermatically from $\frac{1}{6}$ to $\frac{2}{3}$ gr. of morphia and $\frac{1}{192}$ to $\frac{1}{80}$ gr. of atropia from fifteen to twenty-five minutes before the inhalation of the anæsthetic, just long enough for the effect of the narcotic to be fully felt by the nervous centres. In the production of artificial anæsthesia, and especially in cases of prolonged and severe operations, mixed anæsthesia appears to be most important for the comfort and safety of the patient, and is deserving of more general use.

THE advisability of removing the Medical Department of the University of Michigan from Ann Arbor to Detroit appears to be a question which is deeply agitating the profession of the two cities, and its correct solution is claimed to be of far-reaching importance to the interests of medical education in that State. *The Medical Age* has invited the opinion on the subject of prominent members of the profession in the State, and so far as they have yet replied they are stated to indicate a preponderance in favor of removal to Detroit.

AT their recent commencements the degree of Doctor of Medicine was conferred on graduates as follows:

Memphis Hospital Medical College	63
Long Island College Hospital	47
McGill University, Montreal	38
Omaha Medical College	7
University of Southern California	2

DR. HOWARD A. KELLY, of Philadelphia, has been appointed Gynecologist to the Johns Hopkins Hospital, and has resigned the Associate Professorship of Obstetrics in the University of Pennsylvania, to which he was elected a year ago. Dr. Kelly goes to Europe for the summer, and will enter upon his duties in Baltimore upon his return.

We understand that the vacancy at the University of Pennsylvania created by Dr. Kelly's resignation is not likely to be filled, but the work of the chair will probably be consolidated, and that in that event the duties will devolve upon Dr. Barton C. Hirst, the present Associate Professor of Obstetrics.

DR. CARLOS T. MACDONALD, Superintendent of the New York State Asylum for Insane Criminals, has accepted the appointment of President of the New York State Commission in Lunacy. Dr. Henry E. Allison, Assistant Physician of the Asylum at Ovid since 1877, has been appointed as his successor at the State Asylum at Auburn.

A NEW hospital building has been completed at New Brunswick, N. J., and handed over to the authorities having the management of the old City Hospital, who will abandon the rented building formerly occupied, and make a change of name to that of the John Wells Memorial Hospital. The new structure is the gift of Mrs. John Wells, who has caused it to be erected in memory of her deceased husband.

SOCIETY PROCEEDINGS.

THE AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in the Army Medical Museum, Washington, May 14, 15, and 16, 1889.

(Concluded from page 584.)

WEDNESDAY, MAY 15TH.—MORNING SESSION.

DR. J. COLLINS WARREN, of Boston, read a paper on

THE EARLY DIAGNOSIS OF MORBID GROWTHS.

Reference was first made to the great desirability of some means of making an early diganosis in cases of possible malignant disease. The attempt to make a microscopical examination of morbid growths before their removal dates back to the earliest period of microscopical histology. The pain and danger of inflammation attending the methods adopted led to their abondonment. Antiseptic surgery, however, now enables us to perform such an operation almost with absolute certainty of absence of inflammation. Local anæsthesia with ether spray or cocaine renders the exploration free from pain. The instrument which the author employs consists of a small canula sharpened at the end. The calibre of the instrument varies from two to five millimetres. The instrument is used by gently rotating the canula between the fingers. After the instrument has penetrated the tumor to the desired depth it is withdrawn a short distance, and then entered obliquely so as to cut off the column of tissue. The piece removed may be as large as 5 mm. in diameter and 3 cm. in length, or even longer. The fragment can be at once examined by means of the freezing microtome or placed in alcohol and hardened. The operation can readily be performed at the physician's office and immediate diagnosis made. Several cases were reported illustrating the information obtained by the use of the canula. The instrument has been used in over one hundred cases, with little or no discomfort to the patient and with satisfactory results. It has been used in abdominal tumors; it has been used in one or two growths involving the abdominal parietes and peritoneum, but not in deep-seated organs. The object of the author in bringing the results of his observations before the Association was to show that modern improvements have made an old and discarded method not only practicable, but a valuable addition to our means of surgical diagnosis.

DR. F. S. DENNIS, of New York, protested against reliance upon this instrument in the diagnosis of malignant disease. He had never found pathologists willing to base a diagnosis of malignant disease upon the shreds of tissue removed by such instruments. More reliance is to be placed upon the clinical features than upon the microscopical appearances. Among these are age, situation of the tumor, the macroscopic appearance, pain, cachexia, lymphatic enlargement, hereditary influence, and finally, the use of the harpoon. While the harpoon or canula is a useful adjuvant, we cannot rely upon it absolutely in making the diagnosis.

DR. P. S. CONNER thought that there is nothing more definitely established than the difficulty of relying absolutely upon the microscopical examination in cases of supposed malignant disease. It is confirmatory testimony of great value. In the instrument presented we

have an additional aid to our means of diagnosis. While the points presented by Dr. Dennis are valuable, they do not aid much in the early diagnosis.

DR. R. A. KINLOCH, of Charleston, said that it is a well-established surgical principle that all tumors should be removed, so that the early diagnosis is, perhaps, not so essential. The question arises, whether it would not be better to remove the tumor and make the diagnosis of its nature afterward.

DR. W. H. CARMALT, of New Haven, said that in carcinoma and sarcoma the clinical features are, to his mind, a great deal more important than anything we can obtain from the microscope. Microscopical examination of different parts of the same tumor may present different appearances. Another point in regard to the use of the canula is the danger that the irritation excited by the instrument may convert a benign tumor into a malignant growth.

DR. WM. H. RICHARDSON had seen this instrument used in many cases without bad effect, and the microscopists consider that they derive valuable information from examination of the plugs of tissue removed. A correct diagnosis cannot be made in the earliest stages of malignant disease from the clinical evidence alone, and it seemed to him that in the early diagnosis this instrument affords valuable aid.

DR. L. MCLANE TIFFANY, of Baltimore, then reported a case of

FREE DIVISION OF THE CAPSULE OF THE KIDNEY FOR THE RELIEF OF NEPHRALGIA.

Four years ago he suggested the use of incision of the capsule of the kidney in the treatment of nephralgia. The patient, a woman, aged forty-nine years, white, married, had had gonorrhœa and syphilis. She had had abscess of the pelvis opening by the vagina, the discharge continuing for two years. Three years ago she experienced in the right loin sudden severe pain, lasting for a moment. It was supposed to be due to passage of a kidney stone. The attacks recurred at irregular intervals, the periods becoming progressively shorter, and the pain more intense. No calculi had ever been voided. Blood had been seen at rare intervals. The pain always began in the right loin midway between the pelvis and the ribs. It then extended toward the middle line of the body and down to the bladder and groin on the right side. Exertion was apt to induce it. Pressure over the right kidney caused acute pain, but no tumor could be made out. The urine was moderately acid, sp. gr. 1022, contained pus cells, and a few red blood-disks. There was no rise of temperature during the attacks.

The operation was performed January 12, 1889. The kidney, when exposed, moved freely during respiration. A deep stellate scar existed in the kidney, two inches from the lower end. No other abnormality was discovered. A sound was passed into the pelvis and a systematic exploration made, but no stone was detected; the capsule was then freely slit open for three inches, the edges of the cut gaped widely. The wound was then closed and an aseptic dressing applied. No urine passed by the lumbar wound. This soon healed, and since the operation, a period of four months, there had been no attacks of nephralgia.

DR. THEODORE A. MCGRAW, three months ago, operated on a woman on the supposition that there was a renal calculus. None was found, but the capsule was freely slit, and, since the operation, there has been no return of pain.

DR. F. LANGE, of New York, in one case of severe pain recurring at irregular intervals, operated with the expectation of finding a stone in the kidney, but none could be detected. He then proceeded in the manner described. The patient remained free from pain for three or four months, but the attacks then reappeared.

DR. W. W. KEEN, desired to refer to one source of error in the diagnosis of renal calculi which had not been mentioned. He recently operated on a case of tumor of kidney in which the needle, when it was passed into the substance of the organ, gave a distinct impression of coming into contact with a stone. The tumor was malignant and so adherent that it could not be removed. Subsequent examination showed that there was no calculus and that the needle must have come in contact with a calcareous vessel, of which there were several, or a mass of calcareous matter which was present.

DR. JOHN HOMANS, of Boston, recently operated in a case on a boy of fifteen years, who had a large swelling in the perineum. He removed by perineal section thirteen stones from the urethra, which would admit his forefinger. There was also a swelling in the loin which did not disappear after the operation. Three weeks later he opened the kidney through the right loin. He found a considerable quantity of pus but could detect no stone, although he was not sure that a stone was not present.

DR. J. M. BARTON, of Philadelphia, then read a paper on

DIGITAL DIVULSION OF THE PYLORUS FOR CICATRICIAL STENOSIS.

(See THE MEDICAL NEWS, May 25th, page 561.)

DR. R. A. KINLOCH had had no personal experience with this operation, but he could not understand how an organic stenosis of the pylorus is cured by a single dilatation. This is not the case with organic stenosis in other parts, as the rectum and the œsophagus. He was inclined to believe that where the benefit has continued for any length of time, the organic change has been slight. He could understand how benefit could be expected if the wound were kept open and the stricture systematically dilated.

DR. J. EWING MEARS, of Philadelphia, said that while it might not be easy to explain the results obtained by digital divulsion of the pylorus, there could be no question as to the beneficial results. The evidence of reliable operators certainly indicates that it is a proper operation and attended with successful results. This operation should always be preformed in preference to pylorectomy.

AFTERNOON SESSION.

DR. THEODORE A. MCGRAW, of Detroit, presented

A CONTRIBUTION TO THE HISTORY OF GUNSHOT WOUNDS OF THE ABDOMEN.

Reference was first made to a case of gunshot wound of the abdomen operated on by Dr. R. Abbe, of New York, July 8, 1886, in which four hours after the accident adhesions of the intestine to the abdominal wall were found, forming a cavity containing extravasated feces.

The adhesions were broken up, and four holes in the bowel and one in the bladder were closed. Suppression of urine and death followed. In August, 1887, the author was called to a case of gunshot wound of the abdomen, fourteen hours after its occurrence. At the operation it was found that adhesions had formed shutting off the peritoneal cavity. These were broken up and eight perforations of the bowel found; five of these had become so occluded by lymph as to be detected with difficulty, and no discharge could be forced through them. Four feet of the ileum were excised. The patient died twenty-six hours after the operation. A study of these cases led him to suggest that under such circumstances the drainage of the cavity would be the best plan to adopt. The artificial anus or fecal fistula could then be operated on at a later period. The question arises, whether or not these cases of early agglutination are sufficiently numerous to warrant our making them the point on which the treatment of all cases of penetrating wounds of the abdomen over six hours old must turn. This question cannot be decided at present.

A review of the approved methods of treating gunshot wounds of the abdomen was then taken up. The great danger has been shock. The shock has depended, 1st, upon the time occupied in operating; 2d, upon the amount of evisceration; 3d, upon the number and nature of the injuries to be repaired; 4th, upon the chilling of the intestines; and, 5th, possibly upon the long-continued anæsthesia. In discussing the subject the following propositions were considered, many of them based upon experiments upon dogs and sheep:

1. The gravity of an injury of this kind depends partly upon the size of the missile.

2. Gunshots which enter the abdominal cavity pass in a nearly absolutely straight line from the orifice of entrance, through the peritoneum, to that of exit or to their final stopping-place in the viscera. All apparent deviation of bullets fired into the abdomen, from a direct path, are due to changes in position subsequent to the shooting.

3. An incision made directly in the course of the ball, will give the shortest route to the injured viscera.

4. The contents of the bowels may be made to discharge through an open gunshot wound by manipulation and pressure.

5. An empty condition of the alimentary canal is most favorable to healing. To secure this it may be proper, in some cases of injury of the bowel immediately after a hearty meal, to evacuate the contents of the stomach by means of a siphon.

6. Agglutination and limitation of the morbid processes consequent upon gunshot wounds may take place as early as the sixth day.

7. Senn's method of hydrogen gas insufflation, however admirable in recent cases, should be used with great caution in cases four hours old, and especially in those made by small bullets.

8. The dangers of the operations for penetrating gunshot wounds of the abdomen are directly in proportion to the length of the operation and to the amount of the evisceration. The duration of the operation may be lessened: 1st. Making the incision on the line taken by the ball; or, if it has passed from before backward, over the point of entrance. 2d. By limiting the examination of the viscera strictly to such of them as may have been in the course of the ball. 3d. By suturing wounds of the intestine wherever it is possible, instead of excising them. 4th. By omitting all operative procedures, even suture, in wounds which have become so thoroughly occluded by plastic material that the contents of the bowel cannot be pressed through them. 5th. By operating first on those wounds which imperatively demand it, and leaving to the last those which may recover without operation. 6th. By never eviscerating a patient, except, first, when hemorrhage is otherwise uncontrollable; and, second, when there is evidently a discharging wound which cannot otherwise be found. The evisceration of a patient is as dangerous as any gunshot wound of the intestine which cannot be made to discharge its contents by manipulation or pressure can possibly be. There are cases where evisceration is necessary, but the author protested earnestly against the habit of eviscerating patients suffering from gunshot wounds of the abdomen as a matter of routine. We are not warranted in turning a man inside out and subjecting him to frightful danger in the mere fear that there may be still an undiscovered wound, when all the symptoms which ought to indicate such a wound are absent.

9. In cases of those wounds in which the patients may be too weak to endure any radical operation for their repair, efforts for their relief may be made by incision and drainage, and in some cases by attaching the injured intestines to the abdominal wall, as in gangrenous hernia. This procedure occupying but little time and making no draft upon the strength of the patient, may offer a hope of recovery which would not be possible under the expectant mode of treatment.

DR. D. W. YANDELL said that the statement in regard to the course of balls was new to him. A number of cases which he had seen had led him to believe that balls entering the abdomen might deviate very greatly. He was not altogether prepared to accept the statement at present. In one case in which the pistol held near the individual and in a straight line, the ball entered above the symphysis pubis and was found below the spleen, having wounded the intestines in its course. The recommendation that in extreme cases, where the patient is greatly exhausted, the wounded intestine be secured at the abdominal incision, is certainly conservative, and it seemed to him wise.

DR. C. B. NANCREDE, of Philadelphia, said that there are such a number of cases on record in which it was supposed that the balls were deflected, that he thought there could be no doubt that this occurs occasionally. In regard to the incision: from his experience with both the median and the lateral incision, he was forced to the conclusion, that unless we are certain that the bowel has followed an antero-posterior course, the median incision is to be adopted in every case with rare exceptions. He supposed that Dr. McGraw meant by evisceration, removal of the intestine *en masse*. It makes a great difference as far as shock is concerned, whether the intestines are removed all together or simply an inch brought out of the opening, immediately replaced and another portion examined, at no time exposing a large portion of the bowel. So many cases have been recorded in which death was the direct result of overlooking a single wound of the viscera or bloodvessels, that the only safe rule is to make a thorough examination before closing the abdominal viscera.

DR. J. EWING MEARS thought that the median incision is the one which should be adopted. It can be extended any desired distance, which cannot be done with the lateral incision. By the median incision the entire abdominal cavity can be inspected. In regard to what has been termed evisceration, he thought that it is better to permit the patient to die without operation than that an incomplete or imperfect operation should be performed, and that the surgeon would be almost criminally culpable if, after subjecting the patient to the dangers of an abdominal section, he closed the abdomen without satisfying himself by thorough examination that he had found every wound that had been inflicted.

DR. R. A. KINLOCH thought that after the abdomen is opened in a search for wounds every wound should be closed. We cannot say that one wound is of less importance than another.

DR. W. W. KEEN thought that, as regards the line of incision, we should make a distinction between stab wounds and gunshot wounds. In the former case the incision should be made at the point of the wound, while in the latter the almost invariable rule should be the median incision. He agreed with previous speakers that after we have opened the abdomen no case is properly treated if we leave by any possibility a single wound unsutured.

DR. C. H. MASTIN said in regard to the course of balls, that he had treated one case in which the ball entered one inch to the right of the umbilicus, made nine openings in the intestine, passed down through the bladder, out through the prostate, and lodged near the tuber ischii on the left side. The spinal column had not been injured.

DR. F. S. DENNIS, of New York, believed that it is a rule without exception that the median incision should be made where we are going to sew perforations in the bowel or stop hemorrhage in the abdominal cavity. The point of first importance is the control of hemorrhage. The median incision will permit the surgeon to enter the peritoneal cavity in half a minute.

DR. STEPHEN H. WEEKS had not heard any allusion in regard to the use of Dr. Senn's method. He laid stress upon two points: first, the use of the gas in determining whether perforation had occurred; and, second, in locating the openings in the bowel. This latter seemed to him a valuable point.

DR. STEPHEN H. WEEKS, of Portland, Me., then read a paper on

DRAINAGE AND DRAINAGE-TUBES IN THEIR APPLICATION TO THE TREATMENT OF WOUNDS.

He first referred to the great importance of drainage, and after alluding to the various methods proposed for securing it, described a new form of absorbable drainage-tube prepared from the arteries of animals. The arteries used are those of the ox. They are separated from their sheaths, cut into tubes four or five inches long, aud then boiled in water for about five minutes. This sterilizes them and hardens their coats. Holes are next cut in their sides, and they are passed over glass rods of different sizes, according to the size of tube desired. They are now placed in corrosive sublimate solution 1 to 100, and allowed to remain ten minutes. Then they are placed in alcohol 95 per cent., and at the end of twenty-four or forty-eight hours the glass rods are removed, the tubes being kept in alcohol until needed. These tubes are unirritating to the tissues; they are absorbed in from five to seven days, and drain the wound perfectly.

THURSDAY, MAY 16TH.—MORNING SESSION.

DR. JOHN HOMANS, of Boston, reported

A SUCCESSFUL CASE OF NEPHRECTOMY FOR REMOVAL OF CANCER OF THE RIGHT KIDNEY.

The patient, a woman of fifty, for a year had suffered with frequency of micturition. The urine had been dark and bloody at times. For three years she had suffered from indigestion. The tumor had been discovered in 1887, in the right iliac region, and since July, 1888, it had grown rapidly. It filled the right iliac region and more or less the umbilical and pubic regions. On palpation, large irregular nodules were felt, and in some parts there was fluctuation. Laparotomy was performed January 21, 1889. The incision was made in the linea alba, and was four inches in length. The tumor was exposed, and in the upper part were seen the remaining portion of the kidney and two large renal veins. These were tied with silk, the ureter was next tied and divided, and then the pedicle was readily ligated. The tumor was removed, a glass drainage-tube introduced, and the wound closed and dressed with iodoform gauze and absorbent cotton. The tumor measured six by nine inches and weighed fifty-three ounces. There was very little shock. The amount of urine since the operation has risen from ten to fifty-seven ounces, and has been gradually increasing. There was but little discharge from the drainage-tube, which was removed on the fourth day. One month after the operation an abscess was opened in the right lumbar region. A slight swelling and some tenderness still remain in the right loin. Whether these are wholly inflammatory or due to a recurrence of the growth cannot at present be determined. The patient is rapidly gaining strength. His experience led him to say that a large renal tumor which cannot be diminished in size by tapping (he would consider one weighing a pound or more a large tumor) can most conveniently be removed by an incision through the linea semilunaris or in the linea alba. Small tumors and those that can be diminished may be removed by the lumbar incision. In cases of moderate-sized kidneys, disorganized with pus or tubercular, or containing calculus, the lumbar incision is preferable.

DR. FREDERICK E. LANGE, of New York, said that in cases in which a large tumor of the kidney is to be removed, and it is desirable not to open the peritoneal cavity, he had found a trapdoor incision with exsection of one or two ribs, if necessary, gave ample room for operation. He had operated nine times, but never for neoplasm. With free incision and open antiseptic after-treatment, he regarded extirpation of the kidney, even in cases of large tumors, a comparatively safe operation.

DR. M. H. RICHARDSON said that there is a frequent anomaly of the vascular supply of the kidney which should be borne in mind in operations. Instead of one renal artery there may be three or even four arteries. If such a pedicle is ligated *en masse*, there is danger of slipping of the ligature and hemorrhage. This is obviated by tying the pedicle in several sections.

DR. LEWIS S. PILCHER, of Brooklyn, then read a paper on

THE QUESTION OF THE ANTI-TUBERCULAR POWER OF IODOFORM, WITH A SUGGESTION FOR A MORE EXACT CLINICAL TESTING OF THE SAME.

The paper first called attention to the different results obtained by the application of iodoform to tubercular tissues, according as the results were derived from clinical experience or from observations on tubercular affections artificially induced in animals. The following case was a contribution to the study of this question.

A girl, aged thirteen years, with a family history of tuberculosis came under observation with an infiltrated and ulcerated patch on each leg; there was also on each thigh an infiltrated patch without ulceration. The disease was of three months' standing. The diagnosis of tuberculosis of skin was made. The patch on the right leg was excised and microscopical examination confirmed the diagnosis; tuberculous nodules with bacilli were found. The patches on the thighs were also excised and healed without further treatment. Bismuth was applied to the patch on the right leg and healing progressed satisfactorily. It was then determined to apply skin-grafts. The sore was curetted, the grafts applied and did well for a time. Later the epithelial elements broke down and a number of small ulcers formed. At the base of each ulcer was found a particle of bismuth. Portions of the tissue removed, however, showed no bacilli. No iodoform had been employed. Boracic acid ointment and the occasional application of nitrate of silver were now ordered. The ulcer on the left leg was curetted Dec. 10, 1888, sprinkled with iodoform and covered with absorbent cotton. It rapidly healed and on Jan. 25th a wedge-shaped piece was removed and examined. It was entirely free from evidences of tuberculosis. A soft natural skin has since formed.

The committee appointed to take action in regard to the

DEATH OF DR. S W. GROSS,

presented the following:

Whereas, it has pleased the Almighty to remove from our midst, Dr. Samuel W. Gross, who assisted in founding the American Surgical Association and contributed by his example and work largely to its success, who as a teacher was enlightened and impressive, as an author was accurate and original, as a surgeon was sound in judgement, rich in clinical experience, skilled in manipulation, and as a Fellow was genial and courteous; therefore, be it

Resolved, that the Association deplores his death as an irreparable loss, and directs that a copy of the foregoing be spread upon its minutes and forwarded to his bereaved family.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—D. W. Yandell, M.D., of Louisville.

Vice-Presidents.—Claudius H. Mastin, M.D., of Mobile; C. B. Nancrede, M.D., of Philadelphia.

Secretary.—J. R. Weist, M.D., of Richmond, Ind.

Treasurer.—P. S. Conner, M.D., of Cincinnati.

Recorder.—J. Ewing Mears, M.D., of Philadelphia.

Council.—Drs. John S. Billings, L. McLane Tiffany, W. F. Peck, and F. S. Dennis.

Chairman of Committee of Arrangements.—J. S. Billings, M.D., of Washington.

The following were

ELECTED MEMBERS:

Drs. Stephen H. Weeks, of Portland, Me.; Robert F. Weir, of New York; John Homans, of Boston; Lewis A. Stimson, of New York; Fredrick E. Lange, of New York; Lewis S. Pilcher, of Brooklyn; Levi Cooper Lane, of San Francisco; Arthur T. Cabot, of Boston.

The Association then adjourned to meet in Washington on the second Tuesday in May, 1890.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

THE PRESIDENT, W. W. KEEN, M.D., IN THE CHAIR.

Stated Meeting, May 8, 1889.

DR. ROBERT ABBE, of New York, read a paper on

INTESTINAL ANASTOMOSIS.

(See page 589.)

DR. JOHN ASHHURST, JR., considered this plan of lateral anastomosis to be one of the greatest improvements made in this department of surgery. He had not had the opportunity of using either the bone plates of Prof. Senn or the catgut rings of Dr. Abbe, but was disposed to think that the rings are better than the plates. Besides giving a larger opening, they would seem to be more easy of adjustment, more likely to adapt themselves to the shape of the parts, and more apt to effect accurate apposition. The suggestion of Dr. Abbe that the two portions of gut should be so placed that the peristaltic wave may be continuous, seemed to be also of much value. One would certainly suppose that this would render the restoration of natural function easier than for the intestinal contents to be made to turn a sharp corner, as it were, in passing from one portion of the bowel to the other.

DR. C. B. PENROSE said that his experience with this operation of intestinal anastomosis was limited entirely to experiments on the dog. Instead of using the bone plate of Senn or the catgut ring referred to by Dr. Abbe, he used a rubber ring sewed together with catgut; instead of using silk sutures he employed catgut. In five or six days the catgut would be absorbed, and the rubber would adapt itself to any shape for passage through the intestinal tract. In all cases the rings passed within ten days after the operation. There is no advantage in this method over those mentioned, except that the material employed may be obtained when bone or catgut is not available. The rubber disks can be cut of the necessary size and shape from ordinary sheet rubber. In most of his experiments, instead of using reinforcing Lembert sutures, he placed a circular omental graft around the line of union.

DR. ASHHURST did not understand Dr. Abbe to recommend that intestinal anastomosis should be adopted in the treatment of intestinal obstruction, but in cases of fistula which may result from obstruction or other causes. He thought it a well-established fact in surgery that the line of safety in intestinal obstruction in which it is necessary to remove a portion of the bowel, is to estab-

lish a temporary false anus, and to postpone to a subsequent occasion the attempt to restore the continuity of the bowel by this or some other method. The only exception recognized is where the portion of the bowel removed is so high up or where it is so large that a great portion of the intestine would be thrown out of use. For instance, if it were necessary to remove a portion of the jejunum high up, the establishment of an artificial anus would leave so small a portion of the bowel for digestion, that the patient would starve to death, and in such a case it would be proper to endeavor to restore the continuity of the gut at once, although the immediate danger of the operation would be thereby increased. Where, however, the portion removed was lower down in the small intestine, or in the large intestine, the proper course would be to make a temporary artificial anus, let the patient get over the effects of the obstruction, and at a future time endeavor to restore the continuity of the bowel by whatever method might seem proper.

Dr. John B. Roberts vividly recalled a case that he lost because he was not sufficiently familiar with these operations to shoulder the responsibility of making an artificial anus. This case was seen shortly after Senn's method had been described. He was called to operate on a strangulated hernia in the conntry where the patient could not receive much subsequent surgical attention. He found the bowel pretty blue. He debated some time whether it would be better to make an artificial anus or return the bowel. He thought that he had seen the circulation return in bowels as blue as this one, and taking all the circumstances of the case into consideration, decided to return the bowel. The external wound healed rapidly and well, and everything appeared to be right, when suddenly on the fifth or sixth day, in the absence of the attending physician, the patient was seized with intense abdominal pain and expired in a few hours from what undoubtedly was a perforation made by a slough of the intestinal wall. If he had been present, he would have done an immediate laparotomy. He thought that if he had such a case, after hearing this paper, that he should be much more likely to make an artificial anus, and run the risk of curing it subsequently by intestinal anastomosis.

Another indirect result of this method of operating will be that we shall deal with malignant disease more satisfactorily than has been the case heretofore. After making this artificial anastomosis in a case of malignant disease of the intestine, it becomes a proper question whether at a subsequent time the abdomen should not be opened and the cancerous mass be excised with the hope of a radical cure. He believed that in many cases of malignant disease, early, radical, and repeated removal may finally effect a cure. He did not see why with this method we cannot attack malignant disease of the intestine at a much earlier period. He had never been inclined to adopt the excisions done at Vienna and other places for intestinal and pyloric malignant growths, but with lateral anastomosis there is possibly a chance for a safe or even a radical cure by operation.

Dr. M. Price said that this paper three months ago would have been of vast service to him. He had a case of strangulation the result of epithelioma involving four inches of the bowel, the obstruction being almost complete. The obstruction had continued eleven days, but the patient was in moderately good condition. With the method which had been described it would have been easy to unite the two portions of bowel, and this would have saved an immense amount of trouble and annoyance. The patient is of a nervous, irritable temperament, and the application of Dupuytren's instrument causes great annoyance. The subsequent management of the case will probably be difficult, unless this method be adopted. The belly is large and flabby, and the closure of the external wound will probably be a matter of difficulty.

In pelvic work it is impossible in some cases to avoid tearing the bowel; having such an easy method of closure he should not fear the result. He should have no hesitation in cutting out a portion of the bowel diseased and thickened, which offers very little chance of good recovery, and bring the portions of the bowel together by the method suggested by Dr. Abbe.

Dr. J. M. Baldy spoke of the comparative value of the three materials which have been mentioned. One great objection to the bone plate of Senn is the small calibre of the opening which results. Again, the material must pass by the bowel, and in doing so the piece of bone may possibly cause damage. To a great extent these objections are obviated by the rings of catgut. If these rings are examined closely, it will be seen that they are very hard, large, and thick, and that it would be improbable that they should be absorbed in the length of time it would take for them to become loose. In ten days the rings used by Dr. Penrose had passed. We should not expect this ring of catgut to be absorbed in that time. If it should not be absorbed, it would not pass as readily as the rubber ring. The latter would cause no more trouble than so much tripe. The rubber rings could be readily kept for any length of time. The catgut rings, as Dr. Abbe explained, must be kept under compression in some solution, and must be carefully prepared by a comparatively tedious process. This is all obviated in the rubber ring. The approximation by rubber seems to have some advantage over catgut, and the catgut is a most decided advance on the bone plates.

The President, Dr. W. W. Keen, desired to say a word in regard to one of the cases narrated by Dr. Abbe. He was present at the operation, and certainly a more unfavorable case could not be imagined. The woman appeared upon the verge of the grave, and he expected to hear of her death in the course of a week, if not even earlier. It seemed impossible that she should recover, not only from the great emaciation, but also from the operation, which was necessarily very prolonged and very difficult, in consequence of the matting together of the intestines and surrounding parts. He certainly thought that we are to be congratulated upon having such a valuable paper upon such an important topic, and that Dr. Abbe is to be congratulated upon such favorable results in such an unfavorable case.

He could hardly agree with the last remarks of Dr. Ashhurst, in reference to making an artificial anus rather than performing immediate lateral anastomosis of the bowel. This seemed to expose the patient to a greater risk, as it involves the performance of two operations instead of one; one an operation of necessity when the artificial anus would be made, and second a laparotomy when the lateral anastomosis would be made, which always involves some risks. He could see no valid reason why a patient requiring the formation of an arti-

ficial anus, in many if not in most cases, might not have the advantage of immediate lateral anastomosis, and thus avoid two operations, as the lateral anastomosis operation would be hardly more prolonged and involve no greater risk than the formation of an artificial anus, if, indeed, it is attended with as much risk. If he correctly understood the paper, this method was proposed not only for the relief of existing fecal fistulæ, but also for other conditions, such as shot-wounds, excision of the bowel, etc., which would require the formation of an artificial anus.

DR. ROBERT ABBE said that he spoke of the use of this method in the immediate apposition of the intestine in dangerous cases, but he did not intend to emphasize this point. He was rather inclined to agree with Dr. Ashhurst in thinking that an artificial anus should be established. The discretion of a surgeon of considerable experience will, however, allow him to make immediate apposition in certain cases, but, for universal recommendation he thought that often it would be attended with additional risk. If the patient may be hastened over the shock and an artificial anus established in a few moments, the second operation for anastomosis under favorable circumstances is attended practically with little risk. In cases of serious obstruction, lasting for three or four days with shock and intestines over-distended, he thought an artificial anus should be established.

With regard to the suggestion of Dr. Penrose, he thought that some such device as he suggests may succeed everything that has yet been thought of. He did not vaunt the use of catgut rings as having any supremacy. Senn's plates have advantages; in gastro-enterostomy they would be less easily digested than the catgut, but these simple rings have two or three undoubted advantages. With regard to the absorption of catgut, it occurs in less than ten days. In both of his earlier specimens the catgut is gone, and in these the intestine was removed at the end of nine days. It will probably be absorbed in four or five days.

The catgut rings when taken out of the alcohol and put in the intestine swell a little, giving additional firmness and very tight apposition. Senn, in his experiments, oftentimes found the plates plugged by hair, straw, etc., which the dog had swallowed. This built up an obstruction at the operated part which produced serious trouble. These rings, on the contrary, have a very large aperture from the first—as large as two inches. In this narrowed form it slips readily into the incision in the bowel which closes over it, while the diamond-shaped plates of Senn cause a curling over of the edge of the stretched small intestine. When the outside sutures are applied with catgut rings there is from one-fourth to one-half an inch of the two serous coats in contact. If we have more than that, as we do with bone plates, we take something from the lumen of the bowel which would be better left.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PÆDIATRICS.

Stated Meeting, April 11, 1889.

J. LEWIS SMITH, M.D., CHAIRMAN.

DR. T. H. HOLGATE read a paper on

THE TREATMENT OF NÆVUS

and reported some good results from injections of alcohol into vascular tumors. After giving a detailed account of all the methods of treating nævus, such as injections of many different substances, external applications of astringents, caustics, the actual cautery, electrolysis, vaccination upon vascular excrescences, ligature beneath pins, double ligature, setons, etc., he presented a boy four years of age, whose vascular tumor, as large as a filbert, and located on the right ala nasi, had almost completely disappeared after injecting, by means of a Pravaz syringe, a few drops of ninety-five per cent. alcohol. These injections were repeated several times, whereupon the tumor hardened and the skin became pale.

His second case was a child two months old, with a vascular tumor upon the chest. One injection of alcohol was made and the injected fluid confined *in loca* by means of a ring pressed down upon the parts. The tissues whitened in a short time, leaving no scar and but a small portion of the original nævus. In conclusion, Dr. Holgate said that he had no knowledge of alcohol having been used for the purpose by any one else, and he believed that this method, if properly carried out, would constitute a satisfactory treatment for nævus.

DR. HEITZMAN took exception to the term nævus (birth-mark); he would prefer the more scientific name angioma. The treatment of angiomata would depend upon their either being flat, lobular, or cavernous. He had seen no good results from sodium ethylate or electrolysis. He removes small angiomata by means of curved scissors, large and superficial ones with nitric acid. In the cavernous variety he employs nitric acid on a pointed hickory stick which is pushed deep into the tumor. He would give alcohol a trial.

DR. FOX remarked that the cavernous variety will probably not be cured by alcohol. He found electrolysis efficacious and manageable in wine marks, giving fair results. A cambric needle connected with the negative pole of the battery will transform dark into light spots. He had tried linear scarifications with poor success, and referred to Mr. Churchill's work on *Foot and Face Deformities*, in which a red-hot needle is highly recommended.

DR. GERSTER remarked that the location and form of the new growth determine the treatment. Injections of alcohol into goître had been practised in Vienna. One fatal case had occurred in Billroth's clinic after injecting one-half ounce of alcohol, acetic acid fermentation and sepsis taking place. The fatal result was evidently due to septic material introduced at the time of injecting and not to the alcohol. Hollow needles must be absolutely aseptic.

Alcohol injections may be good in nævus of limited extent. Personally, he employs the knife and actual cautery. When the pointed cautery is used it must be rotated in and about the vascular tumor from one single or central puncture. An angioma in the lips or cheeks may occasionally be approached from the side of the mucous membrane, thus avoiding an external scar.

DR. CAILLÉ had treated a number of vascular tumors successfully with the actual cautery. Alcohol injections might be useful and should be tried, the more so as there are a number of cases on record in which alcohol injections into the tissues had been successfully employed to set up inflammatory adhesions and radically cure hernia in children.

EIGHTH GERMAN CONGRESS OF INTERNAL MEDICINE.

Held at Wiesbaden April 15th to 18th, 1889.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 559)

DR. KRAUSE, of Berlin, read a paper

ON THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

In cases of laryngeal tuberculosis he has often used surgical treatment, and has found that tracheotomy, which had been recommenced by Schmidt in 1880, has rendered excellent service to the organ, giving it absolute rest, which favors the curative processes. But the preëxistence of pulmonary tuberculosis and its rapid development may be a contraindication to this operation; on the other hand, we must not forget that the removal of the canula is far from being devoid of danger. He then communicated the results which he had obtained by means of curetting.

The local treatment by lactic acid, after four years' experience, has left a good impression on him, and he thinks it useful especially against the symptom pain.

The cases of laryngeal tuberculosis which he has treated at the Berlin Polyclinic during these past four years, he has divided into two classes: 1st, Mild cases, amongst which he has classified paresis or laryngeal catarrh accompanied by tuberculous pulmonary lesions. 2d, Severe cases, which include tuberculous ulcerations, infiltrations, and erosions.

In 1885, 607 persons were treated at the clinic—out of which 67 suffered from laryngeal tuberculosis, 42 were mild cases and 25 severe cases.

In 1886, 986 persons presented—of which 113 were cases of laryngeal tuberculosis, 46 mild cases and 67 severe ones.

In 1887, 1363 persons—149 tuberculosis of larynx, 65 mild and 84 severe cases.

In 1888, 2285 persons—240 laryngeal tuberculosis, 127 mild and 113 severe cases.

Out of the 289 severe cases, 58 underwent the curette treatment, plus 13 cases in his private practice, which give him a total of 71 cases, out of which 41 were completely cured—or at least there was a remarkable amelioration with disappearance of the painful phenomenon, for where non-cicatrized ulcerations persist one cannot admit a cure from an anatomical point of view.

Out of those patients which are recorded in his statistics, 16 are cured up to the present and the disease has shown no signs of return, 12 are still undergoing treatment, and 7 died, but not as a result of their laryngeal tuberculosis. Several patients have been lost sight of; in 15 he observed a recurrence of the disease.

In unfavorable cases, he has had to deal with a very generally developed cachexia with advanced pulmonary and laryngeal lesions, or again with lesions showing a great tendency to recur. In such cases, however, we must not give up all local therapeutical means, and if this last procedure is not successful, we must use the intervention of a general treatment. Under such circumstances, the establishment of hospital sanitariums would be very useful to the working classes. As to the wealthy patients, he did not think that they ought to be sent indiscriminately to winter resorts, on account of the bad hygienic conditions in which they place themselves during their travel or stay in such places, when their lesions have just begun, allow them to lead a life detrimental to their final cure.

M. SCHEINMANN, of Berlin, from observations made at the Berliner Polyclinic, in cases of phthisis, stated that therapeutical success seems to depend more on the earliness of the diagnosis on the one hand and to local treatment on the other. Amongst the methods employed at the Berlin Polyclinic, incisions, curetting, scarifications, cauterizations by means of lactic acid, have all given favorable results, provided the correct method has been applied in each case; often, also, surgical means have been used in conjunction with medical applications. Surgical intervention, however, must be resorted to only in cases in which the local lesions and general state of the patient allow it; when contra-indications to surgical means appear to exist or when a more simple treatment from a technical point of view is sufficient, the use of menthol is one of the local medications most to be recommended.

DR. STORCK, of Copenhagen, then described a

SIMPLE PROCESS FOR ASPIRATING LIQUIDS FROM SEROUS CAVITIES.

In cases of empyema and ascites, he replaces the apparatus of Dieulafoy, Unverricht, Quincke or Fürbringer, which get easily out of order, by Bunsen's aspirator, such as is used in chemical laboratories to hasten filtration of liquid. The trocar or drainage tube is put in direct communication by means of a soft tube (in the course of which we may place a recipient, which will enable us to recognize the pathological fluid) with a bottle having two openings, and previously filled with water, and in which the flowing out of the liquid, which falls into a vase placed beneath it, brings about an aspiration analogous to that of an air-pump. He has taken out by means of this apparatus, more than twelve quarts of ascitic liquid, also pus in empyema, with most satisfactory results.

PROF. LEYDEN, of Berlin, said that we cannot speak definitively of the value of the operation in empyema; many patients can hardly resist the operation, and in young children it is difficult to obtain the necessary immobility; in each case we must not overlook the general state of the patient.

The Congress then adjourned to meet again at Wiesbaden in April, 1890.

CONGRESS OF THE GERMAN SOCIETY OF SURGERY.

Eighteenth Annual Session.

Held at Berlin April 24th to 27th, 1889.

(Specially reported for THE MEDICAL NEWS.)

The eighteenth German Congress held its first meeting on April 24th, under the presidency of PROF. VON BERGMANN.

PROF. VON ESMARCH, of Kiel, read the first paper, which was on the

ETIOLOGY AND DIAGNOSIS OF CANCER OF THE LIPS AND TONGUE.

We meet with ulcerating tumors analogous to cancer throughout the whole organism, but they are more often

met with on the lips or tongue (syphilitic or tuberculous tumors, or, again, affections of microbian origin). The appearance and the mode of development of these tumors do not allow us to differentiate them easily from carcinoma, and they require a different treatment from cancer, which demands radical extirpation, while other tumors permit of internal treatment and are curable by a less radical surgical interference. In all cases, however, in which a large operation is to be performed, a microscopical diagnosis ought to be made. This histological examination ought even to be several times repeated and tissues at different depths taken.

When the tumors are easily reached a special trocar is used, which allows, at the same time that the puncture is made, the withdrawal of a small piece for microscopical examination. Syphilitic tumors are those which are most liable to occasion faulty diagnosis. Sarcomas of muscular tissues are mostly nothing but syphilomas, which is the reason why we most frequently find that syphilomas of the tongue and lips are, for the most part, constituted by muscular tissue. Syphilomas can manifest themselves many years after infection.

When in microscopical examination the fragment of the tumor does not show any alveolar structure, epithelial agglomerations, cancroidal pearls, tubercular bacilli, stellated rays as in actinomycosis, but, on the contrary, a tissue of granulation, of recently formed connective tissue, of fusiform cells, one can then make, by exclusion, the diagnosis of syphiloma, even if no traces of hereditary or acquired syphilis should exist; the antisyphilitic treatment must then be resorted to immediately. Iodide of potassium is the preparation he first gives, then the mercurial or arsenical preparations; this antisyphilitic treatment must be kept up for a long time—months may be necessary before any action can be found. Great care must be used with benign syphilitic tumors, they must not be taken away with the knife, for it may bring on a rapid recurrence and give a malignant tendency to the affection.

Returning to the etiology of cancer, many possible causes have been given: wounds, penetration of a foreign body into the parts, such as tobacco, cicatrices after burns and operations. In addition, benign tumors can be transformed with time into a malignant type, such as verrucosa, nævus, papilloma, condyloma, atheroma, syphiloma. Chronic irritation of the skin or mucous membrane can also give rise to malignant tumors. Another cause of cancer, according to Virchow, is the feeble resisting power of certain tissues by predisposition.

It probably is the diminution in the resistance of the inflamed tissues which helps or allows the penetration of the connective tissue by epithelial cells; this would be the way of explaining the chronic irritation which seems to play such a prominent part in the etiology of the cancers of smokers. As to the heredity of malignant tumors, it is more an hereditary tendency to connective tissue proliferations, and he thought that hereditary syphilis, and especially the one that has passed through numerous generations—ancestral syphilis, plays an important pathogenic *rôle* in the production of connective-tissue tumors. Now, is the origin of epitheliomas an analogous one? He thought it was, and that ancestral syphilis still exerts its influence in such cases, for cases in which there exists an epithelial proliferation, such as xeroderma, eczema, psoriasis, are transmissible by heredity. As an example, he presented a drawing of three patients suffering from xeroderma; two brothers and a sister, whom he had often seen at his clinic; their lips were completely covered with pigmentated vegetations. In such cases he thinks it necessary to interfere very promptly to prevent a subsequent transformation of the disease into a malignant tumor.

DR. HEIDENHAIN, of Berlin, then read a paper

ON THE CAUSES OF THE LOCAL RECURRENCE OF CANCER AFTER EXTIRPATION OF THE MAMMARY GLAND.

He had made an histological examination of eighteen cases of cancer of the mammary gland for primary cancer. In all cases in which there had been a recurrence he was able to make out by microscopical examination that fragments of cancer had remained in the wound after the operation. If it is easy to see infiltrated lymphatic glands, it is not easy to see by the naked eye if the tumor has been completely removed. In the eighteen cases which he had examined, he had tried to ascertain whether in the section of the tumor which was in contact with the healthy tissues, he would find healthy or diseased tissue; on the presence of healthy or diseased tissue would depend the recurrence of the disease. He examined in this manner several fragments of each tumor; in twelve cases he had found the tissues infiltrated with epithelial rays, and out of these twelve cases there had been eight recurrences, one death as a result of the progress of the cancer in the other non-operated mammary gland, another patient had disappeared, and the two others remain well. In six cases he had found only healthy tissues, and in those six cases the carcinoma has not reappeared up to date.

In cancer of the breast, the epithelial extensions follow the lymphatic vessels and extend often to the pectoral aponeurosis; it is, therefore, very important to take away the aponeurotic covering of the pectoral muscles, and even to cut into the muscle so as to be sure that the lymphatic vessels, which cross the aponeurosis perpendicularly, are not infected. For a long time Dr. Küster has been in the habit of taking away this aponeurosis, because of the bad prognosis presented by cancerous tumors which are adherent to the pectoral aponeurosis.

Out of sixty-five cases in the practice of von Volkmann in which the tumor was adherent to the pectoral aponeurosis two were cured, and in all the others the disease has returned. Out of twenty-one cases of the same kind operated on by Küster, but a single one is still alive, and she has a return of her trouble; hence, when the tumor is adherent, it is well to take away a good part of the muscle and to clean it thoroughly, so as to be sure that the whole growth has been removed.

MR. VICTOR HORSLEY, of London, then read a paper on

THE METHODS OF DIAGNOSIS OF LESIONS OF THE MOTOR ZONE OF THE CEREBRAL CORTEX.

He desired to expose the principles according to which one can establish with certainty the diagnosis of the seat and the nature of the lesions in partial epilepsy of the motor zone of the cerebral cortex. The function of the motor zone is a triple one: 1. Tactile sensation; 2. Muscular sensation, locomotion, and movement; 3. Coordinate motor force. This motor zone can be involved by a lesion which is either exciting or depressing. An

excitation shows itself ordinarily: 1. By a sensitive aura, which consists in a sensation of itching; 2. By tonic and clonic movements; the clonic movements are met with in tumors of the cortex, while the tonic movements are more a lesion of continuity.

Beevor and himself have made experiments on the monkey, and have succeeded in analyzing in a more precise form the motor function. As a result of their experiments, confirmed by clinical observations, there is found in the motor zone of the cerebral cortex centres for the localization of movement of each segment of an extremity; for example, for the index, the thumb, the fingers, the wrist-joint, the elbow, the shoulder, etc. At the first excitation there can be produced a movement of one or two segments of this extremity—for example, the flexion of the thumb; at the second and third excitation one can obtain a typical case of Jacksonian epilepsy. If one destroys one of those motor centres, a paralysis with a loss of sensibility and movement is produced. If, however, the destruction of the centre is not complete, even if movements are still present, there is a loss of the topical localization; the animal still feels, but cannot exactly determine the seat of the tactile or painful sensation. Charcot has for a long time made these same experiments on the localization of movements in hysteria. The temperature on the paralyzed side and on the healthy side presents the same variations as in recent hemiplegias as to the secretions of the glands of the skin; injections of pilocarpine by Strauss have shown a diminution in the secretion on the paralyzed side.

DR. K. SCHUCHARDT, of Halle, then read a paper on

THE NATURE OF OZÆNA.

The different theories which have been formed to explain the fetidity of ozæna are very unsatisfactory. This odor has been attributed to the neighboring cavity of the nasal fossa; but this explanation is not sufficient, for the nasal mucous membrane is itself deeply involved. Others have hunted after a specific microörganism without any satisfactory results. Dilatation of the nasal fossæ occurring as a result of atrophy of the turbinated bones does not suppress the ozæna. Still Zuckerkandl has found no case of ozæna in congenital atrophy, and for a number of years von Volkmann has obtained in recent cases of ozæna a great amelioration of the disease by means of dilatation of the nasal fossæ. This enlargement is obtained by excising a large part of the turbinated bones. In fragments obtained from such resections the author has found that the cylindrical epithelium of the nasal mucous membrane was transformed into pavement epithelium. In a great many cases he has examined the secretions from ozæna, and has found a great many microörganisms in pavement epithelial cells, and sometimes cells of the buccal cavity. He has, moreover, found pavement epithelial cells half the size of the normal ones, and which he considers as an epithelium of transition between cylindrical and pavement epithelium. A study of the fragments obtained by excision has shown a mucous membrane devoid of glands and transformed either into a tissue of granulation or into cicatricial tissue, and constituted by ten or twelve layers of pavement epithelium. The cells of the upper layer were quite analogous to those of the epidermis. This epidermoidal tissue increases more and more, a mass of dead epithelial cells is formed which putrefies, and the accumulation of which becomes dangerous. He thought it important to draw attention to the fact that in mucous membranes where the cylindrical epithelium is transformed into the pavement variety, it is not a rare fact to see a cancroid appear in the future.

DR. PETERSEN, of Kiel, then read a paper on

A NEURALGIC AFFECTION OF THE KNEE.

He had treated a patient presenting all the symptoms of an articular affection of the knee with intense neuralgic pains accompanied by fever. Massage had been employed with negative results. He placed a plaster bandage, which he allowed to remain in position for ten months and a half, after which time he took away the bandage and allowed the patient to walk about; pain soon returned, accompanied by swelling and fever. He then decided to have recourse to an operation, but found nothing abnormal in the peri-articular tissue nor in the synovial membrane. The patient was cured without any rise of temperature, and presented after the operation symptoms of hyperæsthesia, which she had never felt before, besides other hysterical phenomena, but the articular pain had disappeared.

PROF. VON ESMARCH had observed a case of neuropathic coxalgia in an hysterical woman, who presented all the symptoms of hereditary tuberculosis, and even had tubercular glands, with fever in the evening. He tried five times to immobilize the parts with a plaster apparatus, and five times the pains and fever disappeared, but the affection would return as soon as the apparatus was removed. He then decided to open the articulation, but found no traces of inflammation, all the articular tissues being healthy. Cure was rapid; fever disappeared, and to-day the patient walks perfectly well, without any pain.

(To be continued.)

NEWS ITEMS.

The Staff of the Johns Hopkins Hospital.—The Trustees of the Johns Hopkins Hospital have accepted and approved the following appointments:

Hospital Staff.—Physician-in-chief, Dr. William Osler; Pathologist, Dr. W. H. Welch; Chief of Dispensary, Dr. W. S. Halsted; Resident House Physician, Dr. H. A. Lafleur; Resident House Surgeon, Dr. F. J. Brockway; Assistant House Physician, Dr. Harry Taulmin; Assistant House Surgeon, Dr. G. E. Clarke. Consulting Physicians and Surgeons—Dr. Alan P. Smith, on the part of the Hospital Trustees, and Dr. James Carey Thomas, on the part of the University Trustees, and Dr. I. E. Atkinson, Dr. S. C. Chew, Dr. Frank Donaldson, Dr. W. T. Howard, Dr. Chris. Johnson, Dr. T. S. Latimer, Dr. F. T. Miles, Dr. G. W. Miltenberger, Dr. L. McLane Tiffany, and Dr. H. P. C. Wilson.

Dispensary Staff.—Chief of surgeons, Dr. W. S. Halstead, with the assistance in general surgery of Dr. James Brown and Dr. J. M. T. Finney, and the resident house surgeon, with Dr. S. Theobald in charge of the Diseases of the Eye and Ear, and Dr. R. B. Morrison in charge of the department of Diseases of the Skin.

Chief Physician, Dr. W. Osler, with the assistance of Dr. William D. Booker, in the treatment of Diseases of Children, and Dr. H. M. Thomas in the treatment of Nervous Diseases, and the resident house physicians,

with Dr. J. N. Mackenzie of the department of the Diseases of the Throat.

Clairvoyance and Malpractice.—The Supreme Court of Wisconsin has rendered a very important decision, says the New Haven *News*, that a clairvoyant physician is liable for failure to exercise the ordinary skill and knowledge of a physician in good standing, practising in the vicinity, and not merely to the ordinary skill and knowledge of clairvoyants. It is held by the Court that if any one holds himself out as a medical expert and accepts employment as a healer of diseases, but relies for diagnosis and remedies upon some occult influence exerted upon him, or some mental intuition received by him when in an abnormal condition, he takes the risk of the quality of accuracy of such influence or intuition.—*Boston Med. and Surg. Jornal*, May 16, 1889.

Narrow Chests and Tuberculosis.—The Prussian army surgeons have been ordered to measure the chests of recruits, especially of narrow-chested ones, every four weeks. All are to be regarded as narrow-chested, the circumference of whose chest is less than half the length of their bodies. Narrow-chested men whose chests are not widened by drill, are to be regarded as predisposed to tuberculosis, and to be discharged as soon as possible, that they may not infect healthy soldiers.—*Lancet*, May 11, 1889.

Legislation for the Prevention of Milk Infection.—The proposal which Mr. Shirley Murphy made at the Hastings Congress, that local sanitary authorities should be empowered to make regulations for the prevention of milk contamination due to eruptive diseases of the cow, will commend itself to those who only regard these affections as polluting the milk with pus and other morbid products, as well as to those who consider that they possess still larger powers of inflicting injury on the health of milk-drinkers. We have no hesitation in saying that milk thus contaminated ought not to be sold as food for man, and local authorities might well be empowered to take steps to prevent the occurrence or extension of diseases of this nature. The enforcement of regulations for securing the quarantine of cows newly arrived on a farm, the isolation of any cow thus affected, and the washing of the milker's hands between the milking of successive cows, have already been proved in different parts of the country to afford a material security against the occurrence of these maladies, and might with advantage be generally adopted. The fact that many cowkeepers enforce them in their own interest is a sufficient answer to the objection that they would interfere with business arrangements. So, again, the public have a right to be protected against possible injury through the sale of any cow suffering from eruptive disease, and especially if this animal be one of a herd whose milk is under suspicion of having caused infectious disease among its drinkers. At the present time there is no control exercised over these infectious maladies except that which is dictated by the experience of careful and conscientious cowkeepers. To demand that all should take the precautions recognized to be necessary by the few would inflict no hardship, but would even promote the cowkeepers' interests; for the loss of milk which occurs owing to the reduction in the quantity of milk supply when a cow suffers from eruptive disease is itself sufficiently important to make it desirable that every care should be taken to maintain the stock in good health.—*Lancet*, May 4, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 21 TO MAY 27, 1889.

By direction of the Acting Secretary of War, the leave of absence, on surgeon's certificate of disability, granted WILLIAM H. FORWOOD, *Major and Surgeon*, in S. O. No. 35, April 8, 1889, Department of Dakota, is extended one month on surgeon's certificate of disability.—Par. 13, *S. O. 118, A. G. O., Washington*, May 22, 1889.

MIDDLETON, PASSMORE, *Major and Surgeon.*—Will, as soon as practicable after his arrival at Fort Trumbull, Connecticut, proceed to Fort Warren, Massachusetts, and report for temporary duty until the return of the post surgeon from detached service with batteries of the Fourth Artillery ordered to Atlanta, Georgia. He will then return to his proper station (St. Francis Barracks, Florida).—Par. 2, *S. O. 113, Headquarters Division of the Atlantic, Governor's Island, New York City*, May 18, 1889.

MCELDERRY, HENRY, *Major and Surgeon.*—Is granted leave of absence for one month, to take effect upon completion of his duties as a member of the Army Medical Examining Board in New York City.—Par. 4, *S O. 44, Headquarters Division of the Atlantic, Governor's Island, New York City*, May 23, 1889.

PALZKI, J. H., *Major and Surgeon.*—Is granted leave of absence for twenty one days.—Par. 1, *S. O. 44, Headquarters Department of Arizona, Los Angeles, California*, May 18, 1889.

RAFFERTY, OGDEN, *First Lieutenant and Assistant Surgeon.*—Ordered with troops for field practice to Galveston, Texas, where troops will camp for such time as may be hereafter directed.—Par. 1, *S. O. 29, Headquarters Department of Texas, San Antonio, Texas*, May 13, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE TWO WEEKS ENDING MAY 25, 1889.

WHITING, ROBERT, *Passed Assistant Surgeon.*—Ordered to the Receiving-ship "Minnesota."

HARMON, G. E. H., *Surgeon.*—Detached from the Naval Academy, and ordered to the "Constellation."

LOWNDES, C. W. F., *Assistant Surgeon.*—Detached from the Naval Academy, and ordered to the "Constellation."

ARNOLD, W. F., *Assistant Surgeon.*—Detached from the "New Hampshire," and ordered to the "Pinta."

RUSH, C. W., *Passed Assistant Surgeon.*—Detached from the "Pinta," proceed home, and wait orders.

MCCLURG, W. A., *Surgeon.*—Ordered to the Bureau of Medicine and Surgery.

STITT, E. R., *Assistant Surgeon.*—Detached from the Bureau of Medicine and Surgery, and ordered to the "New Hampshire."

ECKSTEIN, H. C., *Surgeon.*—Ordered to the Marine Rendezvous, Philadelphia, Pa.

BRADLEY, M., *Medical Director.*—Detached from the Marine Rendezvous, Philadelphia, Pa., and continue on special duty at Philadelphia.

HENEBERGER, L. G., *Passed Assistant Surgeon.*—Detached

RUTH, M. L., *Surgeon.*—Granted another year's leave.

from the "Thetis," and ordered to the "Iroquois."

HESLER, F. A., *Assistant Surgeon.*—Promoted to be Passed Assistant Surgeon in the U. S. Navy.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

THE ETIOLOGY AND PROPHYLAXIS OF THE TUBERCULOUS DISEASES.

Being the Address in Medicine before the Medical Society of the State of Pennsylvania, at its Thirty-seventh Annual Session, held in Pittsburg, June 4, 1889.

BY J. C. WILSON, M D,
OF PHILADELPHIA.

KNOWLEDGE, like the hard woods, is of slow growth. Auenbrugger worked seven years upon that discovery which he gave to an unheeding profession as the "Inventum Novum." Half a century later it was rescued from oblivion by Corvisart, to be extended and perfected in another quarter of a century by Piorry. Laennec had already acquired a reputation by his practice and writings, when, in 1815, he invented the stethoscope. Four years later he published his *Treatise upon Mediate Auscultation and the Diseases of the Lungs and Heart*, but almost a quarter of a century elapsed before this method of clinical investigation became popularized among medical men, and was generally taught in the schools of England and America. Jenner spent nearly twenty years in investigations and experiment before he published, in 1798, his *Enquiry* into the causes and effects of the cowpox.

Yet each of these discoveries revolutionized that department of the art of medicine which it affected, and to-day no student is entitled to receive the degree, which marks his admission to the profession, who does not know more of percussion than Auenbrugger, at least as much of the principles which underlie auscultation as Laennec, and unless he has easily acquired the essential facts of that beneficent discovery which cost Jenner twenty years of toil.

These things were in the old days. We live, if not in an era of more impatient intellectual activity and keener inquiry, at least in a time of the infinitely more rapid dissemination of information. A flash of electricity, a turn of the press, and that which happened yesterday is known all over the civilized world. But this is news, not knowledge.

Lister's memorable introductory lecture in the University of Edinburgh on "the germ theory of putrefaction, the basis of a new mode of treatment which finds its application in all departments of practice," was delivered in the autumn of 1869. It makes a little pamphlet of twenty-two pages. The time was ripe for the principles set forth in that publication, and in others which quickly followed it. Much that had gone before led up to them. We think at once of the work of Latour, of Schwann, of Pasteur. The facts were convincing. Many of the details of Lister's early methods were, it is true, unnecessary, some were faulty; but the underlying thought was right. If not a new truth, it was certainly a new application of truth.

Nearly twenty years have elapsed, and the seed sown by Lister has grown and multiplied and brought forth an abundant harvest. The surgery of to-day stands in bright contrast to the surgery of that day. The antiseptic procedure has enormously widened its scope and increased its precision. Its capacity to relieve suffering and prolong life is abundantly enlarged. The contrast is so striking that it has become customary to speak of the art of to-day as the New Surgery.

This revolution was not brought about in a day. Listerism and the operative technique which it inspired, made for a long time slow and halting progress. Prejudices were to be overcome, old habits of thought given up, the traditions abandoned, and it was only little by little, notwithstanding the readiness of inter-communication and the eagerness for new and better things which characterize the present, that the New Surgery came into being.

Koch, who had previously published a paper entitled "Investigations into the Etiology of the Traumatic Infective Diseases," announced his discovery of the tubercle bacillus and its relation to tuberculosis in March, 1882. As an example of scientific research, this work stand unequalled in the history of medicine. Had it led to no practical results, its thoroughness, the logical sequence of the various progressive stages of the investigation, its completeness, the rigid tests to which he subjected his results, make it a model for investigators in every department of biology.

Koch demands, in order to determine whether or not a given bacterium is the cause of a certain disease, the fulfilment of the following requirements:

(*a*) The special bacterium must be present in all cases of the disease.

(*b*) It must be separated from other microörganisms, and from all matter found with it in the diseased animal.

(*c*) Thus freed from all foreign matter, it must be capable, when properly introduced, of producing the disease in healthy animals.

(*d*) The bacterium must be found properly distributed in the animal in which the disease has been induced.

Not only did he devise and elaborate the technical methods by which these rules can be carried out, but he saw that every one of the conditions was absolutely fulfiled in the investigation which he had undertaken. The proof was final; the demonstration complete. The germ theory was no longer a working hypothesis; it had become, in regard to the tuberculous diseases at least, an incontrovertible fact. So admirable was Koch's account of his investigation, that Trudeau, in the Adirondacks, with but little knowledge of microscopy and very imperfect apparatus, much of which he constructed himself, was enabled by following a translation of the original report to repeat the research step by step, and verify the results by the inoculation of pure cultures of the bacillus.

The labors of Lister had not only made the discovery of special pathogenic microörganisms possible; they had made it a necessity. There were many workers in the field; the fulness of time had come. Obermeier had already in 1873 discovered the spirillum of relapsing fever. Had it not been the tubercle bacillus, some other pathogenic bacterium would have been brought to light in its causal relationship to some specific morbid process. But to Koch is due the lasting honor of having first clearly demonstrated the part played by microörganisms in the etiology of disease, and of having thus laid the foundation of the science of bacteriology.

This discovery, modestly as it had been announced by its author, was at once heralded throughout the world and received with acclamation. Klebs, Cohnheim, and others had already, without reserve, placed tuberculosis in the group of the specific infectious diseases. To have found the infecting principle itself, or at all events the carrier of the infection, seemed a boon almost beyond comprehension. Its importance appealed to the dullest attention. The mortality statistics of pulmonary consumption are, unfortunately, too familiar. To this disease alone fifteen per cent. of all deaths are to be attributed. Add to these the deaths due to tuberculosis of other organs, of the joints, of the meninges, of the peritoneum, then swell the list by the cases cut off by intercurrent diseases or accident, and the result is simply appalling. The tuberculous diseases are not endemic the world over, they are epidemic. Consider that a large proportion of the cases are chronic, progressive, inexorably disabling, and it becomes easy to realize that this group of diseases exerts an influence upon the family and upon society that nothing but the apathy begotten of hopeless familiarity renders endurable. It is easy then to understand the enthusiasm with which Koch's discovery was received. Men thought of the maxim *Causa sublata tollitur effectus.*

The cause being now found, nothing seemed easier than that it should be dealt with, and that, as a consequence, one great scourge of the human race would become preventable, if not curable. Certainly, one of the first effects was to arouse both the professions and the people from the apathy into which they had fallen in regard to these diseases. Those who had the opportunity and training proceeded to verify and extend Koch's investigations, with the result, not only of acquiring a mass of information in regard to the life-history of the bacillus itself, and a more exact knowledge of the pathology of the tuberculous diseases, but also with the acquisition of like knowledge in regard to other bacteria, and the part played by them in the pathogenesis of many other infections.

Others turned their attention without delay to therapeutic investigations, having for their object the destruction of the tubercle bacillus. It is needless to enumerate the methods of antiseptic and germicide treatment which have been the outcome of these efforts. They are fresh in your memory. Based upon insufficient knowledge of the mode of growth and development of the tubercle bacillus in the tissues, they have one after another been tried and found wanting.

These failures have afforded an apparent justification to that contingent of the profession who, preferring darkness to light, because the light has not yet flooded all the obscure places, still refuse to recognize the etiological relationship between the tubercle bacillus and tuberculosis.

Seven years have now passed. A host of workers have collected a vast array of facts which rest upon a sure basis of truth. These facts are being sorted and placed in proper relation with each other. A critical observer sees that steady progress is being made. In surgery much has been accomplished; yet the results in the diminution and cure of the visceral tuberculous diseases are not encouraging. The growth of knowledge is slow; it is not the less sure. He does not to-day seem too sanguine who looks forward to practical results of the greatest importance, if not in the cure, at least in the prevention, of pulmonary consumption.

Some broad generalizations are already possible:

1. *Tuberculosis is a specific infectious disease.*

Its exciting cause is the tubercle bacillus. Its etiology is the natural history of that parasite. The predisposing influences are those conditions, both inherited and acquired, which favor the implantation and growth of the bacillus. Its pathology is summed up in the statement of the facts which relate to the development of the bacillus in the tissues, and the effects which it produces locally and upon the organism at large. Its diagnosis no longer depends upon the anatomical character of the lesions, but upon the presence of the tubercle bacillus and upon its inoculability.

The distinction between true tubercle and pseudo-tubercle is now perfectly clear. Both these formations are composed chiefly of lymphoid corpuscles or leucocytes. They are the result of an irritative hyperplasia. But the tubercle is the result of a chronic or persistent inflammation produced by a continuously acting irritant, and spreading by the infection of neighboring parts and by the circulation. The pseudo-tubercle may be produced by the mechanical irritation of small foreign particles. It constitutes, upon the subsidence of the active process, simply a mass of fibrous tissue, which undergoes no further change, and it remains single, being without the power of giving rise to other similar structures.

The pathological unity of the tuberculous process, whatever the tissue or organ affected, however diverse the clinical manifestations, is at once established by the double test of the presence of the bacillus and the inoculability of the disease. The relationship between the most unlike lesions subjected to these tests becomes apparent. The lung packed with tubercle or riddled with cavities owes its lesions to the same cause which produces the insignificant tuberculous wart upon the hand of the pathologist who dissects it; intestinal ulceration, hyperplasia of the mesenteric glands, peritonitis, fistula in ano, may all result from the action of a common cause.

The pathological identity of processes producing the most diverse lesions in the same organ is also shown by these tests. So-called chronic catarrhal pneumonia of the apex, gray miliary tubercle, diffuse, tuberculous, cheesy infiltration in the lungs, are dissimilar manifestations of the same pathological process. Joseph Coats maintains the view that the changes of fibroid phthisis are essentially tuberculous. The "solitary tubercle" of the brain, which is usually yellow and caseated, and may be as large as a walnut, is due to the same cause as the miliary tubercles occasionally found scattered in other parts of the brain substance and so familiar in the meninges.

A large proportion of the cases called scrofulous are now known to be tuberculous. We no longer think that scrofulous individuals are especially liable to become tuberculous, for tubercle bacilli are almost constantly found in so-called scrofulous lymph-glands, bones, and joints. After a time the local tuberculosis becomes extended or generalized.

Neelsen places tuberculosis along with enteric fever, leprosy, and syphilis in his fourth group of the germ diseases—namely, the mycoses with tissue proliferation or infected ulcers.

2. *The constitutional manifestations are not directly due to the bacilli, but to toxic principles evolved during their growth and multiplication.*

The bacteriologico-chemical researches of Hoffa, Brieger, Vaughan, and others, within the past few years, have done much to clear up the relation between the special pathogenic germs of the infectious diseases and their symptomatology. They have also rendered necessary a new definition of the infectious diseases. In the words of Vaughan and Novy, "An infectious disease arises when a specific, pathogenic microörganism, having gained admittance to the body, and having found the conditions favorable, grows and multiplies, and in so doing elaborates a chemical poison which induces its characteristic effects."

Nencki obtained upon chemical analysis of tubercle bacilli, water 88.82 per cent., solids 11.18 per cent. The solids yielded 22.7 per cent. of substances soluble in alcohol and ether, which, when used experimentally upon animals, showed the presence of a tetanizing poison. This substance has not been isolated. Bonardi demonstrated in tuberculous sputum alkaloidal organic bases, which introduced into rats and guinea-pigs rapidly produced remarkable disturbances of the nervous system. This experimenter believes that these organic bases may explain the fever, sweating, disturbances of the circulation, and other general symptoms of the disease.

The wide range of intensity in the constitutional phenomena is to be explained, only in part, by the varying reaction of different individuals to morbific agencies. It is more largely due to the extent and activity of the local process. Nor can we attribute the constitutional disturbances to suppuration associated with local tuberculous processes, as in the case of the breaking down of pulmonary infiltrations, or in joint diseases; for constitutional disturbances of the same kind, and of every degree of intensity, are developed in tuberculous meningitis, tuberculous peritonitis, and in those rapidly developing cases of consumption in which the lungs are found studded with miliary tubercle without extensive caseation or suppuration. Furthermore, decided constitutional disturbances are not infrequently associated with circumscribed lesions of insignificant extent, while enormous cavities, occupying the large portion of a lobe, are not incompatible with fair nutrition and moderate health for a period of years, in cases in which, after extensive destruction, the tuberculous process, as such, has come to an end.

Finally, the frequency with which obsolescent tuberculous lesions at the apex of a lung are found in individuals dying late in life from non-tuberculous diseases, suggests the possibility that a tuberculous process, terminating in resolution, may confer upon the individual in whom it has occurred subsequent immunity from the disease. The very lesions show that such individuals have at one period of life been susceptible, while their repeated exposure to the infecting principle during subsequent periods may be fairly assumed.

3. *Tuberculosis is directly and indirectly communicable from the affected to the healthy individual.*

In other words, it is a contagious disease. Koch has demonstrated the fact that tubercle bacilli never develop or multiply outside of the body of animals. They require for their development a constant and uniform temperature of 85° to 100°; they, however, retain their vitality for an indefinite period outside of the body and under conditions extremely unfavorable for the development of other microbes.

Cadéac and Malet found that tuberculous matter dried and pulverized was, after one hundred and two days, capable of giving rise to the disease. Schill and Fischer maintain that it only loses its virulence after six months. Pietro asserts that well-dried sputum may retain its infecting power for nine or ten months if maintained at a temperature of 77° F. Bacilli with or without spores show an equal tenacity of life. The distribution of tubercle bacilli outside of the body is, however, by no means as extensive as was formerly thought. The investigations of Cornet prove conclusively that they are to be found in greatest numbers in the immediate neighborhood of affected individuals; that they are not found in the dust collected from the abodes of individuals free from consumption, nor are they to be found in the apartments occupied by consumptives who habitually and exclusively use the spit-cup.

The experimental production of tuberculous diseases by the inoculation of sputum or other substances containing tubercle bacilli is a familiar fact. When animals thus inoculated are killed in a short time, the lesions are invariably found restricted to the point of inoculation and the neighboring lymph-glands. In view of this fact, Cornet holds that the assumption that the lungs are the seat of an especial predilection for the development of the tuberculous process is absolutely untenable, the frequency of pulmonary consumption, as compared with other forms of tuberculous disease, being due to the favorable conditions presented by the respiratory organs for the implantation of the infecting material. Numerous experimenters have shown that air passing over moist surfaces is incapable of taking up tubercle bacilli; the expired air which passes over the moist surfaces of the respiratory tract, of cavities, of collections of bacilli-containing pus or muco-pus not yet expectorated, does not carry the infecting principle, and is, therefore, incapable of communicating the disease.

Nor do the expectorated matters themselves, so long as they remain moist, comply with the conditions necessary for the communication of the disease to healthy individuals except by direct contact or inoculation. When dried, however, they are capable of dissemination through the atmosphere in the form of fine dust bearing bacilli and spores, which, being inhaled by susceptible individuals, cause the disease. Desiccation is a necessary requirement for the dissemination of tubercle bacilli and spores by means of the atmosphere, and the most favorable conditions for such dissemination are found within doors. Wet weather and a moist atmosphere are unfavorable.

The fact that the disease is most frequent in crowded quarters supports the view of dissemination by means of dried sputum. Flick, in his remarkable investigations in Philadelphia, found that ninety per cent. of infected houses had an infected house joining them, while thirty-three per cent. of the infected houses showed more than one case. These facts warrant the conclusion that consumption is communicated by contact, by association, or by living in close proximity.

Flick also found that pulmonary phthisis conformed to the laws which govern the spread of contagious diseases in other respects. The grouping of the cases is the same, and the localization is influenced by the age of those predisposed to the disease. It prevails in circumscribed epidemics, which are, however, less noticeable because the disease is of long duration, whereas the ordinary contagious diseases run their course rapidly.

From this point of view, the gradual infection of several members of a household, previously free from the disease, in the course of a few months or years after the introduction of a case, becomes intelligible. So, also, married couples infect each other; and those who nurse relatives suffer from the disease, females being more liable by reason of their closer ministration. Leibermeister has observed many cases where previously healthy families became infected one after another after removal to a house formerly occupied by a consumptive patient.

It is, however, a question of the seed and the soil. A large proportion of individuals enjoy an immunity which appears to be complete; many others, while capable of infection, show a remarkable resistance to the invasion of the tuberculous process which either undergoes resolution in the region infected or makes a tardy progress interrupted by more or less prolonged periods of quiescence. Between cases of this form and the cases called *phthisis florida*, the disease manifests every degree of intensity.

These variations in the degree of susceptibility to the disease and its development serve to explain some of the objections which have been urged with more or less force against the doctrine of the contagiousness of pulmonary consumption.

Those who assert that if consumption were contagious the human race would have rapidly become extinct, overlook the fact that a considerable number of persons in every community, especially those living outdoor lives, and those who are not brought into association with consumptives in confined apartments, are not exposed; and, secondly, the fact that a certain proportion of individuals, either by reason of the resistant power of their tissues, or of the integrity of the mucous surfaces of the air-passages, or from other causes not well understood, possess a more or less complete immunity. Those who deny the contagiousness of phthisis on account of the infrequency with which medical men, nurses, and other attendants upon consumptives are said to contract it, advance an argument which rests upon insufficient grounds. A certain proportion of individuals thus brought into habitual contact with consumptives enjoy an immunity; others while susceptible doubtless escape infection by reason of the thorough ventilation and cleanliness of well-regulated wards and sick-rooms. Physicians and attendants upon those suffering from cholera or the fevers, even in hospitals in which considerable numbers of such patients are collected, do not often contract the disease, yet who will deny that according to their special modes of transmission, cholera, enteric fever, and typhus are contagious?

Another difficulty lies in the localization of the tuberculous process in its beginning, and its tardy development, the time which elapses from the infection and the manifestation of the disease being not infrequently so long that the original exposure, even when traceable, is forgotten.

The often quoted statement of Williams in regard to the exemption of nurses and attendants in the consumptive hospital at Brompton is valueless in the light of advancing knowledge. The cleanliness and ventilation of a well-ordered hospital tend to reduce the dangers of infection. The statistics of Baer and others show a mortality in prisons that is nearly four times as great as outside, the majority of cases developing not during the earlier years of imprisonment but toward its close. The fact that more than fifty per cent. of nuns in cloisters die of tuberculosis speaks for itself.

The attendants in hospitals come and go; many of them remain in the service for short periods only. The statistics of Williams are incomplete in not showing the subsequent history of the personelle upon which they are based. On the other hand, the elaborate recent statistics of Cornet prove incontestably that attendants upon the sick show as a class an enormously increased death-rate, the increase being due to tuberculosis and other infectious diseases.

4. *It is not in the ordinary sense hereditary.*

Prior to the discovery of the tubercle bacillus, the direct transmission of tuberculosis from the parent to the child was very often assumed. The frequency with which the children of consumptive parents were affected with the disease was regarded as proof of its transmission by inheritance. Even tuberculosis developing in adult life in those previously presenting every appearance of health, was assumed to be of hereditary origin, the frequent absence of tuberculosis in the parents notwithstanding, for it was assumed that hereditary tuberculosis might skip a generation or two.

Baumgarten supports the view that congenital tuberculosis may be latent, the bacilli remaining inactive in certain tissues for years, or throughout life, unless called into activity by traumatism or other influences.

The number of cases in which tubercles have been actually found in the fœtus is very small. The view that congenital tuberculosis may be due to the semen or ovum, is a pure hypothesis unsupported by proof. The opinion that it may be derived from the maternal blood by way of the placenta, rests upon a small number of positive facts. Malvoz found that microörganisms may pass the placenta only when it is diseased. Charrin found in a seven and a half months fœtus of a tuberculous woman, which died three days after birth, tuberculous lesions of the abdominal organs. Merkel discovered cheesy nodules in the palatine arch, the lymph-glands, and in the neighborhood of the hip-joint, but not in the lungs of a child of a tuberculous woman, which died directly after birth.

Should the view held by Baumgarten be proved, it will explain the presence of tubercle in the lymph-glands, bones, and marrow, and the occurrence of tuberculous meningitis, which is so common in young children. Even in very young children, the primary infection fre-

quently takes place by way of the lungs, a fact fully in accord with what is now known of the mode of contagion, the relation between the mother or nurse and the young baby affording the fullest opportunity for the communication of the disease.

The conclusion that enteric fever or scarlet fever is hereditary, would rest upon very nearly the same basis of fact upon which the doctrine of the hereditary transmission of tuberculosis has been assumed, namely, that the parents of those having the sediseases had previously suffered from them, and that, in a few rare instances, the child of an infected mother has shown the characteristic signs at birth.

In regard to the hereditary transmission of tuberculosis among the domestic animals, the statistics of the Berlin abattoir are not without interest. Among 320,000 calves, 17 were tuberculous; whereas, among 398,000 cattle, there were no less than 8000 tuberculous.

5. *A rational, scientific prophylaxis is practicable both as regards individuals and communities.*

The part played by heredity in direct distribution and propagation of the tuberculous diseases is insignificant as compared with the influence of contagion. The few children born of tuberculous parents have died promptly; those who develop the disease in infancy, die early in life; the infected children of tuberculous parents who reach adult age, are those who long suffer only from tuberculous diseases of the lymph-glands and the bones, and are not, in the absence of pulmonary lesions, likely to disseminate the infecting material.

The chief avenues of infection are the digestive and respiratory tracts. The disease is acquired by infected food, and by the inhalation of air containing tubercle bacilli and spores; other methods of invasion are infrequent and relatively unimportant.

The only sources of the infecting material are those discharges from the bodies of infected human beings and domestic animals which contain the tubercle bacilli and their spores. Of these, the chief are cow's milk used as food, and the matters expectorated by patients suffering from pulmonary phthisis, which is not likely to infect unless dried and inhaled as dust. The flesh of tuberculous cattle does not cause tuberculous diseases in those who partake of it; there is, in fact, no case on record of the communication of the disease by these means. The liability of its communication by milk is increased where there is tuberculous inflammation of the udders of the cows. It is important, therefore, that all milk used as the food of infants should be sterilized by boiling, and until used it should be kept protected from the atmosphere.

The infection by way of the intestinal tract, frequent as it is, especially in childhood, is notably less common than infection by way of the respiratory surfaces.

As Cornet has shown, the only effectual prophylaxis is in the proper care of the sputum. In this respect tuberculosis presents a strong analogy to enteric fever, of which it has been said, "that measures of prophylaxis will be efficient in proportion to the strength of our belief in the material nature of the typhoid poison, and in the possibility of destroying it or preventing its spread." It is the duty of the physician to see to it that no case of infectious disease under his care becomes a focus of contagion. In enteric fever we have long recognized a disease in which this rule can be effectively carried out by means of the disinfection of the stools. It is evident that in pulmonary phthisis we must follow the same principle of prophylaxis, the one efficient procedure being the proper disposition of the bacilli-laden expectoration.

The difficulties in the practical application of this rule lie, on the one hand, in the chronic nature of a large proportion of the cases of the disease, and, on the other, in the deeply rooted prejudices or indifference of patients in regard to the matter. Cornet has formulated the rule that a phthisical patient should never under any circumstances expectorate on the floor or in a handkerchief, but always in a spitcup; this is the one thing needful. The cup should contain a little water, and be frequently emptied into the sewer, where the contents sooner or later undergo destruction, or at all events pass beyond the reach of inhalation by man. The cup should be frequently washed with boiling water. A cup has recently been devised, and is sold in the shops in this country, which consists of a small metal frame in which a folded paper cup is set; when a quantity of sputum has accumulated, the paper may be removed and burned with its contents.

The floor should be sprinkled with water before sweeping, and the sweepings destroyed by burning. The clothing and bedding of tuberculous patients should be disinfected by prolonged boiling. The walls of apartments occupied by patients should be frequently rubbed down with bread, which may then be burned. Carpets and curtains should be shaken in the open air at a distance from houses, and exposed at intervals to the air and sun.

The acceptance and universal practice of prophylactic measures would warrant the hope that the prevalence of pulmonary consumption will diminish, as have the septic diseases following surgical operations and puerperal fever, under a rational prophylaxis.

Such a result is not only theoretically possible; its accomplishment in the course of time is, in a high degree, probable. This hope has the support of strong analogies in the records of the past; the great scourges of mankind have prevailed during more or less extended historical epochs, and then passed away. The plague which ravaged all parts of Europe during the Middle Ages, which depopulated villages and laid waste districts, which, in the form of the black death, swept over Europe in the fourteenth century, and destroped in three years twenty-five millions of inhabitants, disappeared from England with the great outbreak of 1665. Only twice during the present century has this pest shown itself in Western Europe. The disappearance of the plague was probably due to the conjoint influence of a rigorous quarantine and altered methods of living. It has been said in regard to Europe, that when the shirt came in, the plague went out.

Typhus, which devastated Europe from the fifteenth century until the end of the first quarter of the present century, of which Murchison says, "A complete history of typhus would be the history of Europe for the last three and a half centuries," has almost burnt itself out. Here and there in the seaport cities of Great Britain it still smoulders, but in the great modern campaigns of the American War and the Franco-Prussian War typhus fever was unknown. Its disappearance is unquestionably due to that prophylaxis which comes of a clear knowledge of its causes, and to the improved hygiene of modern life.

Leprosy was for thirteen centuries endemic in Great Britain; cases were still in existence on the borders of Scotland toward the close of the last century. To-day no indigenous case is to be found within the British Isles.

Smallpox was for centuries one of the greatest scourges of mankind. Scarcely a decade passed in which the disease, sweeping over great areas, did not decimate the inhabitants of one country or another. To-day we have no dread of it beyond the fear lest prolonged and complete immunity may beget neglect of the precautions which protect us.

The discovery of the tubercle bacillus has not been without practical results. Without it these generalizations were impossible. It has given us, in place of obscurity, confusion, uncertainty in regard to pulmonary consumption and the other tuberculous diseases, a positive etiology, a clear pathology, a rational therapeutics, a hopeful prophylaxis. These are great gains at the end of seven years.

But it has done more than this. It has pointed out the direction of future work, and indicated possibilities never before dreamt of. The news of Koch's discovery burst upon the world like a flash that grew faint, leaving the eyes dazzled. The knowledge which Koch has given us is like the dawn, which steadily grows brighter and brighter, until the clear day shows the perfect truth.

How shall we fitly characterize those rare men who, by sheer intellectual force, have found and given to their fellowmen new truths? By what metaphor shall we make their greatness plain? They are bright stars—suns—in the intellectual firmament, in the steady light of whose genius the work of mankind may be carried on as in the open day. I speak not of science in general, nor for the other sciences, but in medicine a century has given us five—that son of France, dead at thirty-one, whose philosophic mind conceived those generalizations which laid the foundation, not only for modern physiology, but for modern biology; that German, no longer young, to whom nothing human is without interest, busy in the affairs of men to-day as always, both in science and in politics, whose labors laid the foundation for the science of modern pathology; that Englishman, to whose clear insight mankind for nearly a century past, and for all time to come, owes the incalculable boon of deliverance from smallpox; that other Englishman, who to-day lives to see in the result of his labors the new surgery; and, lastly, him to whom we owe that discovery upon which rests the young science of bacteriology—they are called—names never to be forgotten!—Bichat, Virchow, Jenner, Lister, Koch.

ORIGINAL ARTICLES.

LAPAROTOMY FOR PERFORATING TYPHOID ULCER.

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THE following case is reported as an addition to the as yet meagre statistics of laparotomy for perforating typhoid ulcer.

C. H., male, aged twenty-two, admitted into Milwaukee Hospital March 31, 1889.

History.—Patient has been under treatment for the past three weeks for extensive bronchitis. He was never confined to his bed, but came to my office two or three times during the above period. His temperature was never over 101° F. There was complete loss of appetite, but no symptoms pointing to intestinal disturbance. March 31st, visited at his home. Three days ago he had an acute attack of pain in the left iliac region, followed immediately by vomiting, which has since then continued and has latterly become stercoraceous. During this time there has been absolute constipation notwithstanding repeated doses of castor-oil, administered by his friends, which only aggravated his symptoms. Abdomen was found very tense, tympanitic throughout except over the left iliac region, where dulness was present and exceedingly tender on pressure. Liver dulness displaced upward. Patient collapsed, pale, and pulse 140. Stimulants per rectum ordered.

Probable diagnosis, volvulus with obstruction.

March 31. He was removed to the Milwaukee Hospital for laparotomy. Vomiting still continues, and in addition to the symptoms of yesterday a cracked-pot resonance, on percussion to the right of the area of dulness. Considerable fecal-colored fluid removed from stomach by siphon irrigation. Stomach irrigated with one-third per cent. solution of salicylic acid. Two ounces of brandy administered by rectal injection and one-one-hundred-and-twentieth grain of sulphate of atropia hypodermically. Chloroform as anæsthetic on account of the bronchitis. Temperature of operating room 90° F. Abdomen opened by a median incision, four inches in length, extending downward from one inch below the umbilicus (subsequently enlarged upward four inches). The livid, overdistended intestines immediately bulged into the incision at points covered with plastic lymph. Manual exploration of abdomen with negative result. Evisceration necessary to determine the seat of obstruction, during which the bowels were caught in and kept covered by warm aseptic compresses. A number of loops of the upper portion of the ileum were found enlarged twice the size of the remaining portion of distended intestine, rotated on the mesenteric axis one complete turn from left to right. Volvulus corrected.

Below this point the intestine was found overdistended, and while withdrawing for examination, fluid feces escaped through the abdominal incision with a sudden gush, coming from the left iliac fossa and in quantity about one pint. Intestinal loops showed large and thick patches of plastic lymph, especially the coils removed from the pelvis. A few minutes were spent in searching for the perforation, during which preparations were made for hydrogen gas insufflation for the purpose of locating the perforation. A leakage was accidentally discovered taking place through a small perforation in the centre of a large membranous patch at a point six inches above the ileo-cæcal valve. The opening was located on the convex side of the bowel nearly opposite the mesenteric attachment, surrounded by

a gangrenous patch, oval in shape and irregular in outline, one-half inch in length and one-quarter inch in width. The plastic lymph was removed as completely as possible, the gangrenous portion turned inward and completely buried by eight interrupted Lembert sutures, embracing the peritoneum, muscular, and submucous coats, a procedure which narrowed the lumen of the bowel to one-half its normal size.

Examination of the intestine for some distance above and below as far as the ileo-cæcal valve revealed no additional perforations.

During the whole period that the abdominal cavity had been open, two irrigators, one on either side, were employed for flushing the abdominal cavity with a one-third of one per cent. solution of salicylic acid at the temperature of the body—the glass tips being placed alternately in the lowest part of the pelvis and lumbar regions.

On attempting to replace the intestines within the abdomen, it was found to be impossible on account of the great distention; consequently that portion involved in the volvulus was sought for and an incision made in its centre on the convex side, one inch in length, and a considerable quantity of fluid feces, but no gas, escaped. The incision only succeeded in emptying a limited portion of bowel, as all peristaltic action was completely suspended. Three feet of intestine, on either side of the incision, were completely emptied by the pouring-out process, viz., seizing the highest loop and raising it, thus pouring contents from loop to loop until the incision was reached. The same process was repeated on the other side of the incision. The bowels were now cleansed by irrigation, incision closed by interrupted Lembert sutures, after which reduction was easily accomplished.

A large curved glass drain was introduced into the most dependent point of the abdominal cavity, and the external incision closed in the usual manner with the addition of three tension sutures, extending down to, but not including, the peritoneum. The fluid remaining in the abdominal cavity was now made to escape through the drainage tube by turning the patient on his face. Antiseptic dressing applied and retained by strips of adhesive plaster embracing two-thirds of the body, covered with common cotton and bandage. Glass drain plugged with antiseptic cotton and instructions given to remove the fluid by aspiration from the drainage-tube every hour, and to wash out the tube with a physiological salt solution. Duration of operation one hour. Pulse about 160 and distinctly perceptible at the wrist.

After-treatment.—Foot of bed elevated; externally dry heat was applied, and stimulation by rectal injections of brandy. Vomiting ceased. Two evacuations of the bowels. Three hours after operation complete collapse supervened and death seven hours later.

Post-mortem twelve hours after death. Diffuse septic peritonitis. The pathological conditions indicated that the inflammation commenced in the left iliac region at a point where the perforation had taken place. The loops of intestine which constituted the volvulus were only half as large in circumference as at the time of the operation. The remaining portions of the small intestine considerably dilated and intensely congested, with here and there patches of plastic exudation. The sutures in both places where the intestine had been sewed were buried underneath a delicate layer of plastic lymph which formed quite a firm adhesion between the coaptated serous surfaces.

A few ounces of bloody serum in the cavity of the pelvis.

Liver and spleen enlarged, parenchyma softened.

On slitting the ileum open from the ileo-cæcal region upward three elliptical ulcers were found below the point of perforation. Above the perforation no gross textural changes. Mucous membrane in lower portion of ileum in a state of catarrhal inflammation.

REMARKS.—The post-mortem appearances in this case leave no doubt that notwithstanding the mildness of the febrile attack the patient suffered from genuine typhoid fever. The bronchitis was such a conspicuous symptom during life that the presence of any serious pathological changes in the intestines was not even suspected. Perforation of one of the typhoid ulcers occurred at the end of the third week of the illness and gave rise apparently at first to circumscribed peritonitis, which limited the fecal extravasation but did not prevent the extension of the septic inflammation. The symptoms of obstruction were undoubtedly due to the presence of the volvulus and to the suspension of peristalsis in that portion of the intestinal canal concerned in the septic inflammation. The volvulus was caused, without doubt, by the distention of the intestines and the arrest of peristaltic action, conditions produced by the septic peritonitis.

So far, the operative treatment of perforating typhoid ulcer has proved successful only in the case reported by Mikulicz, and in this instance there appears to exist no convincing proof of the correctness of the diagnosis in reference to the etiology of the ulcer.

This case illustrates forcibly the necessity of resorting to direct treatment of the perforation as soon as its presence can be diagnosticated, with a view of preventing the diffusion of the septic infection. If the operation is postponed until a general septic peritonitis has had time to develop, the prospects for a favorable result are almost *nil*, and under such circumstances the execution of the operation is attended by the greatest difficulties on account of the distended and paretic conditions of the intestines.

As a perforating typhoid ulcer must almost of necessity lead to a speedy fatal termination, abdominal section, suturing of the perforation, and disinfection of the abdominal cavity present themselves as urgent, and the only rational indications in the treatment of such cases.

LARYNGEAL VERTIGO.[1]

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ATTENTION was first directed to this peculiar laryngeal neurosis by Prof. Charcot, in a communication that he made to the Société de Biologie of Paris (*Comptes Rend. Soc. de Biol.*, Paris, 1876), in which were reported two cases of an undescribed neurosis to which he applied the term "laryngeal vertigo."

CASE I. was in a gouty male, aged fifty-five years, who, after a slight cough, lost consciousness without presenting the least trace of convulsion. The patient had never presented any symptom of epilepsy.

CASE II., a male, aged fifty-four years, not an epileptic, for a year had occasional attacks that originated in a feeling of titillation below the larynx, followed by a short, dry cough that culminated in loss of consciousness. The attack was of short duration, and though the face became turgid, and there were some slight convulsive movements of the head and arms, yet he never bit his tongue, nor voided his urine, nor was in the slightest way mentally confused at the end of an attack. The latter were increasing in frequency, as many as five or six a day occurring, and they might commence while he was walking in the street. An attack would not, however, occur whenever he coughed. In this case the patient experienced an indefinable vertiginous sensation, but it never resulted in falling. Examination of his throat showed a slight, granular pharyngitis; he had suffered from chronic bronchitis and emphysema for a long time. Nitrate of silver was applied to the pharynx, and bromide of potassium given internally. The patient recovered; possibly, Charcot said, by using the medicine, possibly by other causes.

Subsequently Charcot reported (*Progrès Médical*, 1879, p. 317) other cases:

CASE III.—A male, aged forty years, who suffered from asthmatic attacks. During one of these he felt a painful, burning titillation below the larynx, followed by a short cough that resulted in unconsciousness; during this he had clonic movements of the arm. An examination revealed slight roughness of the mucous membrane of the larynx.

CASE IV.—A male, aged forty-five years, who had bronchitis the previous year, followed by a permanent feeling of heat and titillation in the larynx. He would have a slight cough, culminating in vertigo. The larynx was normal.

Charcot considered that the term laryngeal vertigo might be applied to an irritation of the centripetal laryngeal nerve, just as the title Ménière's vertigo is connected with an affection of the auditory nerve in the labyrinth:

CASE V.—Gasquet (*Practitioner*, August, 1878) reported a case in a male, aged seventy years, who caught a severe cold, and subsequently had an irritation of the larynx, causing violent spasms of coughing, with urgent dyspnœa. Eventually the coughing was followed by loss of consciousness for two or three minutes; on recovering consciousness he felt giddy and confused. Under treatment the paroxysms ceased.

CASE VI.—Krishaber (*Ann. des Malad. de l' Oreille et du Larynx*, 1882, p. 12) reports a case in a male, aged thirty-two years. He uses the term "ictus larynge," and considers it due not only to spasm of the glottis, but also to arrest of the diaphragm.

CASE VII.—Landon Carter Gray (*Amer. Journal of Neurol. and Psych.*, 1882, p. 588) reported a case in a male, aged fifty-five years, in whom the same symptoms were presented as in the foregoing case. In this case, however, the patient had been wounded by a bullet, in 1863, and during his convalescence he had epileptiform seizures, with loss of consciousness, for two months. This case presented a decided neurotic history. Gray proposed the name laryngeal epilepsy.

CASES VIII. and IX.—Lefferts (*Arch. of Laryngol.*, 1883, p. 165) reported two cases in comparatively young men; in each a spontaneous tickling sensation in the larynx caused a cough that resulted in a temporary brief unconsciousness. The larynx was normal in each case, and there was no history of epilepsy.

CASE X.—P. McBride (*Edinb. Med. Rev.*, 1884, p. 790) reported a case under the title, "Rare Form of Laryngeal Neurosis." A male, aged thirty-five years, had difficulty in breathing, two weeks after having swallowed a fish-bone. He would have a short cough, causing swimming in the head and dizziness. He never lost consciousness nor presented epileptiform symptoms, and McBride considered that the paroxysm was due to spasm of the glottis.

CASE XI.—Russel (*Birmingham Med. Rev.*, 1884, p. 71) reported a case in a male, aged fifty years, who suffered from catarrhal pneumonia for fourteen years. The tickling in the larynx culminated in cough and unconsciousness. No epileptiform symptoms.

Massei (*Giorn. Internaz. de Scien. Med.*, Naples, 1884, p. 192) reports three cases:

CASE XII.—A male, aged forty-five years, who had suffered from chronic bronchial catarrh, with acute exacerbations, who had one attack of laryngeal vertigo.

CASE XIII.—A male, aged fifty years, suffering from chronic follicular pharyngitis. He had repeated attacks of syncope consequent upon moderate coughing. He had diffuse catarrh of the larynx and trachea.

CASE XIV.—A male, aged fifty-six years, had suffered from vertigo from his thirty-first to his forty-second year. He would have asthma, with cough culminating in vertigo, sometimes four attacks a day. Laryngoscopic examination revealed hyperæmia of vocal cords and trachea. He was diabetic.

None of these cases had epileptiform symptoms or antecedents; nevertheless, Massei compares laryngeal vertigo to epilepsy, and attributes its origin to vagus irritation: "The irritation of the vagus disturbs, by alteration of the function of the heart, the circulation in the brain, and thus causes a change in the relation between the arterial and venous tension and the condition of the cerebro-spinal fluid that is sufficient to cause vertigo and epileptic attacks."

F. I. Knight (*Trans. Amer. Laryng. Assoc.*, 1886) published a very interesting and comprehensive paper on this subject, reporting two cases:

CASE XV.—A male, aged forty-two years, suffering from bronchitis for a year, who had an attack of laryngeal vertigo after being subjected to severe mental strain for some time. There was no evidence of spasm of the glottis, nor of convulsive movements.

CASE XVI.—A female, aged forty-seven years, who had granular pharyngitis for ten years. She lost consciousness only once after coughing. Both of these cases recovered under treatment.

[1] Read before the Section in Laryngology and Rhinology, New York Academy of Medicine.

CASE XVII.—C. W. Chamberlain (*Proc. Conn. Med. Soc.*, 1882, p. 47) reports the case of a male, aged thirty-eight years, who had been garroted. After the acute inflammatory symptoms had subsided, he was seized, after dining, with inability to breathe. He had a series of catching respirations that resulted in syncope. These attacks would occur after eating or when very much fatigued. He never had epileptiform symptoms. Cured by strychnine.

CASE XVIII.—E. Weill (*Rev. Mens. de Laryng.*, October, 1888) reports the case of a vigorous male, aged forty-five years, who had suffered from asthma for eight years. During the attacks of asthma he is subject to attacks of laryngeal vertigo.

CASES XIX. and XX.—G. Thermes (*Journ. de Méd. du Paris*, 1887, p. 936) reports two cases of whooping-cough in males, aged sixty-four and sixty-seven years, respectively. Toward the termination of the disease, fits of coughing would occur that would cause oscillatory sensations, with cloudiness of vision and temporary unconsciousness.

To these cases, that cover the literature of the subject, as far as ascertainable, is to be added the following:

CASE XXI.—G. W. C., male, married, aged forty-four years, of vigorous physique, though inclined to *embonpoint*, consulted me in 1888, for his throat. He stated that he had suffered from attacks of spasmodic asthma since childhood, except during a voyage to South America, and during four years' service in the Civil War. At the close of the war he engaged in railroading, and four weeks after confinement in an office his asthmatic trouble recommenced. His business necessitated his residence in Philadelphia, Baltimore, Cleveland, Chicago, St. Paul, and New York, and notwithstanding this variety in his climatic environment, the trouble remained about the same, although in recent years his discomfort from this has greatly diminished. If he spends his summers in the country, he is a sufferer from hay-fever.

In 1875 he was garroted, his throat and chest being severely beaten. His injuries necessitated his confinement in the house but for a few days, though for some time subsequently he felt a soreness in his throat.

In 1876, while lying on a lounge, he suddenly felt a catching in his throat, objects revolved around him, and he fell forward unconscious, remaining so for about a minute; his face was purplish-red, and, on recovering consciousness, he felt nauseated. Since the first attack, he would at various times feel a sensation of tickling in his throat, that would result in a few sharp, short coughs, culminating in unconsciousness. This latter condition would endure for a variable period, from a few seconds to a minute. On recovering consciousness he would, as in all the reported cases, resume a conversation or any other matter with which he had been engaged at the commencement of an attack. He never had any epileptiform symptoms, and his family history is unexceptionable.

He has noticed that the attacks would never occur in the open air, always in closed or heated rooms. Nervous excitement or fatigue were inciting causes. Though occasionally he has suffered from dyspepsia, the attacks were not associated with this trouble.

He has consulted specialists in all the cities in which he has resided, and the consensus of opinion is that the garroting produced a laryngeal trouble that caused the cough. No particular importance was attached to the syncope, though to him it has been the most alarming symptom.

His inspiratory murmur was stridulous, and sonorous and sibilant râles are detected over each lung. The chest is well developed, measuring thirty-eight and a half inches in circumference. An examination of the larynx reveals congestion of the arytenoids and false vocal cords, occasionally resulting in an acute laryngitis. The rima glottidis is of normal size, and there seems to be proper nerve stimulation to the vocal cords.

With the intention of relieving the asthmatic condition, potassium iodide was administered, but no relief followed this medication. He was then given doses of sodium bromide at night, with syrup of hydriodic acid during the day. This treatment caused immediate diminution in the frequency and irritability of the larynx, and he has not now suffered from an attack for some time.

Sphygmographic tracings of the pulse during an effort at forced expiration, while the glottis is closed, show but little divergence from the same experiment in a healthy man. No dizziness was felt during this effort at forced expiration, which was kept up for thirty seconds. Several repetitions of this experiment produced no different result. Rapid inspiration, persisted in for some time, produced nothing but physical fatigue; and, as the patient stated, during an asthmatic attack he has kept up rapid respiration for twenty-four hours without unconsciousness resulting. If he coughs protractedly, cloudiness of vision occurs, but no unconsciousness. A differentiation between this cloudiness and the obscuration that precedes the unconsciousness of a vertiginous attack, is that *muscæ volitantes* occur in the latter.

From the brief *résumé* of the reported cases it may be inferred that there is a diversity of opinion as to the exact nature of the disease.

Several excellent authorities consider it a laryngeal epilepsy, but so many features are lacking in a resemblance to even a mild form of *petit mal* that this, it seems, is an inappropriate nomenclature. As Knight (*op. cit.*) says: "Loss of consciousness does not compel us to consider a case epileptic, for asphyxia and syncope may produce temporary unconsciousness." Furthermore, in the case of Sommerbrodt (*Berl. klin. Woch.*, Sept. 25, 1876), a polypus on the left vocal cord produced clonic convulsions with unconsciousness, foaming at the mouth, biting of the tongue, with subsequent paresis of the left arm and leg. In this case there were decided epileptic symptoms, but none of the reported cases of laryngeal vertigo resembles it, save in loss of consciousness. Landon Carter Gray (*op. cit.*) fortifies the applicability of the term laryngeal epilepsy by comparing it with the cough in cases of posterior spinal sclerosis; in these cases, while the same fun-

damental pathogenesis may exist, yet the attacks are of longer duration, and a post-mortem examination reveals degeneration of the pneumogastric. As all the cases of laryngeal vertigo are reported improved by treatment, it is improbable that any gross lesion of that nerve occurs in the disease.

Gasquet (*op. cit.*) considers that a reasonable explanation of the phenomena is Woakes's theory ("Etiology and Treatment of Occipital Headache," *Practitioner*, 1878, p. 263) of the transmission of impressions to the inferior cervical ganglion; this causes vaso-dilatation of the vertebral artery and its labyrinthine branch, with corresponding pressure on the endolymph or fluid in the semicircular canals; hence the interference with the equilibrating apparatus. While it is impossible to contradict this theory, it seems unnecessarily elaborate, especially when the nervous connections are considered.

Thermes (*op. cit.*) explains the phenomena by an afferent impulse from the superior laryngeal to the pneumogastric, thence to the respiratory centre in the medulla; these cause efferent impulses, culminating in cough, etc.

If vertigo is a sense of defective equilibrium, associated with revolving of surrounding objects and a feeling of cerebral oppression, the reported cases do not evidence the existence of these symptoms, and the term is a misnomer applied to this laryngeal neurosis. The fact that there is an aural, an ocular, or a stomachic neurosis resulting in vertigo, does not necessitate the existence of a laryngeal reflex.

Weir Mitchell ("Vertigo," *Pepper's System of Medicine*, vol. v. p. 419) refers to the close relation of the pneumogastric centre of the cerebellum to the centre of equilibration as demonstrated by the gastric symptoms in vertigo. Working from this fact we must conclude that the impulse from the superior laryngeal nerve must cause afferent and efferent impulses in the pneumogastric; the former to the cerebellum, causing interference with the equilibrating centres (syncope), and the latter to the stomach (nausea).

Weber (*Müller's Archiv*, 1851) gives a theory of vertigo due to circulatory disturbance: "The pressure exercised at the summit of the venous cone results in a considerable reflex in the veins that is not prevented by the valves, the blood constantly arriving and finding no outlet. Hence a stasis results, with distention of the thoracic veins, followed by injection of the eyes, redness of the face, abolition of the cerebral circulation, with at last suppression of the functions of the brain (vertigo and also apoplexy), of the peduncles, and of the corpora quadrigemina." McBride (*op. cit.*) accepts this theory, and quotes in confirmation of it the analgesia produced by rapid breathing. The comparison seems defective in that the latter result is a consequence of oxygen intoxication, while the former is, in part, a carbonic acid intoxication. It is believed, furthermore, that a refutation of this theory is demonstrated by the failure to cause vertigo in the case herewith reported by the intense pressure on the venous system attained in the effort at forced expiration with a closed glottis, even when persisted in for thirty seconds; also by the failure of comparatively long attacks of coughing to cause unconsciousness.

All authorities agree that the inception of the attack is due to a short, sharp cough. It is, therefore, improbable that that this causes toxic venous stasis, where a prolonged cough will not. So the circulatory theory must be abandoned for the neurotic.

As the entire phenomena rest upon the occurrence of loss of consciousness, the laryngeal symptoms being either negative or unimportant, and as this loss of consciousness is as sudden as that occurring in ordinary syncope (though of much shorter duration), the term *laryngeal syncope* might be adopted for cases presenting the symptoms herein described, because such a term would neither do violence to the probable etiology of the affection nor to the exactness of our nomenclature.

The treatment seems based on local counter-irritants in cases presenting laryngeal symptoms, and the bromides internally, although in several cases strychnine has proved advantageous.

NEW YORK, March 26, 1889.

MEDICAL PROGRESS.

Antisepsis as Practised by M. Trelat.—MR. ERNEST HART (*British Med. Journal*, May 25, 1889), writing of "Medical Paris of To-day," gives the following account of the antiseptic method as used by Professor Trélat:

The special precautions which he borrows from Lister and from French antecedents are drainage and dressings with antiseptic gauze or other substances; repeated washings with antiseptic solutions are also frequently employed in his clinique with good results. Whenever it is possible, M. Trélat has suppressed drainage of wounds, even for extensive wounds, or for amputation, or removal of tumors. Where perfect apposition is possible he secures it by maintaining it by superficial and deep sutures, and leaving no drain in the wound. After a successful course of operations for more than two years, he has obtained absolute confidence in this method of proceeding, which may be described as the British method following on the indications of Liston, Ferguson, and Lister.

In all his operations he employs, after thorough washing with soap both of the hands of the operator and of the field of operation, a solution of biniodide of mercury, containing in each quart of water 20 grammes of alcohol, 0.1 gramme of iodide of mercury, and 0.03 gramme of iodide of potassium; without the addition of iodide of potassium the iodide of mercury is insoluble in this preparation. By the addition of the iodide of potassium the iodide of mercury is somewhat decomposed; it is

transformed into an iodurated iodide of mercury. Nevertheless, prolonged experience during the last three years, which had in the first instance demonstrated the insufficiency of a solution of 5 centigrammes, has established in his practice the perfect efficacy of the solution employed. That solution has, he considers, the great advantage of being at least as efficacious as the solution of bichloride of mercury 1 per 1000, and infinitely less irritating to the hands of the operator and to the tissues and organs of the patient, especially in the neighborhood of the anus, vagina, etc.

After operation, terminating with bandages, washing, complete suture, and without drainage, he employs very simple dressings, most frequently iodoform gauze, which he replaces frequently with salol gauze; above this a layer of thoroughly aseptic anhydrous cotton-wool, externally a layer of ordinary cotton-wool, extending far beyond the wound. The whole is kept in place by many turns of the bandage, arranged so as to obtain regular and pretty firm compression of the seat of operation. When necessary he adds for some hours an India-rubber bandage, promptly replaced by an ordinary linen bandage. This dressing is undone at the end of five or six days and the sutures removed; the new dressing is not taken off for ten or twelve days later, when the cure is complete.

Lanolin in Blenorrhagia.—DR. STERN, according to the *Revue Gén. de Clin. et de Thér.*, May 2, 1889, has used injections of lanolin with great success in a number of cases of blenorrhagia. The discharges disappeared rapidly. After a continuation of this treatment for eight days, Dr. Stern uses astringent injections, and finally a one and a half per cent. solution of resorcin.

The formulæ preferred by him are as follows;

I.—*Simple Lanolin Injection.*

℞.—Lanolin . . . . 25 parts.
Oil of sweet almonds . . 75 " —M.

II.—*Antiseptic Injection.*

℞.—Salicylic acid . . . 4 grains.
Lanolin . . . . ℥vjss.
Oil of sweet almonds . . f ℥ijss.—M.

III.—*Astringent Injection.*

℞.—Sulphate of zinc . . . ¼ grain.
Distilled water . . . f ℥jss.
Lanolin . . . . ℥vj.
Oil of sweet almonds . . f ℥ijss.—M.

A Cure for Dandruff.—DR. A. J. HARRISON, of Bristol, recommends the following salve for dandruff:

Caustic potash . . . . 8 grains.
Phenic acid . . . . 24 grains.
Lanolin } . . . . āā ℥jv.—M.
Cocoanut oil }

This preparation should be rubbed into the scalp morning and evening. Complete cure is usually effected in one to three months.—*Le Progrès Méd.*, April 20, 1889.

Treatment of Diaphragmatic Hernia.—PROF. POSTEMPSKI, of Bologna, relates the case of a patient who had been stabbed, four months before coming under notice, in the sixth interspace on the left side. The wound healed in eight or ten days, and he went back to his work. On making an effort, however, such as lifting a heavy weight, he suffered from painful sensations referable to the heart and intestines. The heart was displaced, there was tympanitic resonance in the left chest above the nipple, intestinal occlusion, stercoraceous vomiting, and dyspnœa. He died soon after admission to the Consolazione Hospital. On *post-mortem* examination, a wound two centimetres long was found in the diaphragm, and the transverse and descending colon with almost the whole of the omentum were herniated into the thorax.

This case led Prof. Postempski to devise an operation by which he thinks it possible to cure such a condition. Having convinced himself by experiments on the dead body that it is not possible for the surgeon to reach the diaphragm from the abdomen, he proposes that an opening should be made in the chest-wall as in thoraco-plasty, one or two ribs being divided in two places if necessary, and the wound in the diaphragm sutured, the edges being first freshened if need be. Section of the ribs is not required in the lower spaces. On March 4th of the present year he had an opportunity of trying this operation on the living subject. A boy, aged fourteen, received a stab two centimetres long in the eleventh interspace on the left side in the posterior axillary line. The omentum protruded from the wound to a length of five or six centimetres. Prof. Postempski enlarged the wound by twelve centimetres, and forced the eleventh and twelfth ribs widely apart, bringing into view a large part of the vault of the diaphragm, in which a wound one and a half centimetre long was seen. The protruding omentum was tied and cut away, the stump being pushed back into the abdomen. The edges of the diaphragmatic wound were then brought together with silk sutures passed through the whole thickness of the muscle. The pleural cavity, which contained clots of blood, was washed out, and the wound in the chest-wall was closed with deep sutures passing through the parietal pleura. No drainage-tube was used. On opening the chest, the air had rushed in and caused pneumothorax, but no serious consequence followed this. After the wound was closed, emphysema of the whole left side of the chest up to the neck came on. In less than a fortnight both pneumothorax and emphysema had disappeared; the wound healed by first intention, and the patient was presented to the Roman Academy of Medicine three weeks after the operation. On April 1st he left the hospital quite well, except for slight pleuritic thickening round the wound.—*The British Med. Journal*, May 4, 1889.

Iron for Children.—Although the value of iron tonics for children is well recognized, yet the usual formulæ in which they are prescribed are most unpleasant and difficult to administer. The following are quoted from the *Revue Gén. de Clin. et de Thér.*, May 9, 1889, and will be found both pleasant to take and effective:

I. Effervescent ferruginated lemonade. The two mixtures are added to each other at the moment of drinking:

Mixture A.

℞.—Citrate of iron . . . . gr. ix.
Citric acid . . . . . gr. xij.
Water . . . . . f ℥ij.—M.

Mixture B.

Bicarbonate of potash	gr. xij.
Syrup of lemon	℥ijss.
Water	f℥jss.—M.

The above is sufficient for two doses.

II. Pills of pepsin and iron. Tanner prescribes two of the following pills for children three years of age:

℞.—Reduced iron	19 grains.
Phosphate of zinc	9 "
Pepsin	19 "
Glycerine	q.s.

Make into twenty pills.

III. The following is also always easily administered and greatly liked by the little ones:

℞.—Hydrated peroxide of iron	℥j.
Confection of orange } Confection of opium }	āā ℥v.—M.

Dose, from one-half to one coffeespoonful, according to age. The above is highly recommended by Dr. Ellis.

The Toxic Action of Cocaine.—Regarding the action of cocaine, DR. WÖLFLER (*Deutsche med. Woch.*, May 9, 1889) has found that it is far more toxic when used in operations on the head or face than when used on other parts of the body. In operations on the extremities sixteen minims of a five per cent. solution may be injected without any unpleasant symptoms arising, while in operations on the face, head, and even the neck, toxic symptoms will be observed if more than one-third of a grain is used.

Splenectomy.—PROF. D'ANTONA related a case at the Surgical Congress of Bologna, in which he had removed the spleen on account of chronic fever caused by a specific bacterium. The patient, a boy, aged three and a half years, suffered from pleurisy, with effusion on the left side, in March, 1887; a few weeks later he had gastro-intestinal catarrh, with high temperature at night, and swelling in the region of the spleen. On the thirteenth day there was resolution of the fever, but the spleen continued to enlarge. Arsenic, quinine, and other antimalarial remedies were tried in vain. The fever returned in a short time, and antipyretics were powerless to reduce it. There were occasional sudden remissions, to the extent of four or five degrees. Meanwhile the spleen became larger and larger, but the child could run about the house, and had a most voracious appetite. In June, 1888, when Dr. D'Antona saw the little patient, the belly was large, the body emaciated, the intelligence bright; he suspected the existence "of some infection *sui generis* situated in the spleen and invading the organism from time to time." On August 13th, splenectomy was performed. The temperature fell to the normal point on the day of the operation, and though there was a slight rise on the following day, the fever ceased entirely on the fifth day. This temporary improvement was followed by gastro-intestinal catarrh, purulent otitis, and afterward diffuse bronchitis. These complications disappeared, and the child seemed to be completely cured. About five months later the boy's father, who was a medical man, had two patients with cerebro-spinal meningitis under his care: the boy contracted the disease and died, but there was no *post-mortem* examination.

Dr. D'Antona presented the extirpated spleen, which weighed one kilogramme three grammes, being about one-tenth the child's total weight. The blood obtained from the spleen was very pale, the white corpuscles not increased, the red discolored. Cultures made in agar-agar broth, and serum gave no result for eight days, then a bacillus resembling the microbe of typhoid was discovered, which Dr. Caselli believes to have been the cause of the disease. In grew with difficulty in agar-agar, better in gelatine; but unlike the typhoid bacillus, it did not grow on potato. Inoculation experiments have so far proved fruitless.

DR. CECI described the result of splenectomy in a girl on whom he performed that operation three years previously. At the age of eighteen menstruation had not yet begun. Twenty days before the operation, great enlargement of the thyroid took place; this disappeared in two months, but the patient remained in a marasmic condition. Some months later, remarkable improvement took place, and she gained considerably in weight. Coincidently with this improvement, hypertrophy of the tonsils took place to such a degree as to threaten suffocation. He removed one tonsil, a fortnight after which the goitre disappeared entirely. The patient gained further in weight, and has since remained in perfect health. Dr. Ceci thinks that the enlargement of the tonsils was vicarious, these organs having in some way taken the place of the spleen which had been excised.—*The British Med. Journal*, May 4, 1889.

Psoriasis of the Head.—As a most excellent remedy for psoriasis capitis DR. E. STERN, in the *Correspondenzblatt für Schweizer Aerzte*, May 11, 1889, recommends the following:

℞.—White precipitate of mercury	10 parts.
Green soap	40 "
Anhydrate of lanolin	50 " —M.

The disease will completely disappear inside of a week leaving the skin smooth and white. The application of lanolin cream and daily washing will soon restore the normal functions of the skin.

Iodoform in Inflammation of the Joints.—DR. V. MOSETIG-MOORHOF, who is in charge of the Imperial Hospital of Wieden, Austria, has observed most excellent effects following the hypodermatic use of ethereal solution of iodoform in cases of articular inflammation, especially of a fungus type. The injections frequently cured cases in which otherwise excision would have been necessary. Dr. v. Mosetig-Moorhof tried the effects of other antiseptics used similarly, but their action was very unsatisfactory.—*Centralblatt für Chirurgie*, May 4, 1889.

The Vitality of the Typhoid and Cholera Bacillus.—By a series of experiments DR. J. UFFELMANN has demonstrated that the bacillus of typhoid fever has a most tenacious vitality, and that it will not only live but increase in decomposing fecal masses for fully four months. At a temperature of 50° F. they will gradually decrease in number, but will increase at a temperature of 63° F. Contrary to this, it was found that the cholera bacillus was of a "most delicate constitution," and at longest it only lived four days in fecal masses, but usually died much sooner. The latter bacillus seemed to live longer

in water than in feces.—*Prager med. Wochenschrift*, April 17, 1889.

Treatment of Fractured Patella by Wiring the Fragments.—DR. CECI, at the Surgical Congress of Bologna, reported eleven cases in which he had treated fractures of the patella by subcutaneous wiring with buried sutures. The patients were for the most part between fifty and seventy-eight years of age. In nearly all the cases the fracture was simple and transverse, but in one there was comminution of the lower fragment, and in another, a man, aged sixty-nine, the bone had been broken a second time two months after the first accident. Dr. Ceci uses silver sutures. All the cases had done well, hæmatoma and non-infective arthritis having occurred only once.—*The British Med. Journal*, May 4, 1889.

A Modification of Dr. Jeffries' Bread for Diabetics.—Dr. JOHN A. JEFFRIES published in the *Boston Med. and Surg. Journal* of January 24, 1889, the following formula for a new diabetic bread: One cup of graham flour; one cup of best bran previously scalded with one cup of boiling water; two eggs; German yeast or baking powder; salt to taste; one cup of milk or water. To be mixed with a spoon. Such a bread contains 17.72 per cent. of starch, the equivalent of 19.68 per cent. sugar.

Dr. James Tyson, in the *University Medical Magazine* for June, 1889, writes as follows:

"Happening to have at the time a case of diabetes, where the sugar was eliminated by a selected diabetic diet from which bread was excluded, it occurred to me to make a trial of this modified bread. Accordingly some was made after this formula; at the end of one week the urine was found to contain between one-half per cent. and one per cent. of sugar; it then occurred to me to modify the formula by substituting the gluten flour of the Health Food Company of New York for the graham flour, mixing it with bran as before. At the end of another week the urine was found to contain about one-quarter of one per cent. of sugar; the patient was then taken off of all bread, and at the end of another week sugar had disappeared from the urine, showing that this combination, as was to be expected, was better than the former. The bread thus modified was quite palatable."

Treatment of Scabies with Petroleum.—DR. CONSTANTINE PAUL sends the following formula for "Petroleum soap" to *L'Abeille Médical*, April 30, 1889:

℞.—Soap	. . . . .	℥iij.
Petroleum	. . . . .	℥f.jss.
Alcohol	. . . . .	℥f.jss.
Wax	. . . . .	℥j.—M.

Two or three applications a day will result in complete recovery in one or two days.

The preparation is also said to be of value in ringworm.

Cancrum Oris Successfully Treated by Local Applications of Corrosive Sublimate.—DRS. PETER YATES and E. C. KINGSFORD report three cases of severe cancrum oris in children in the *Lancet* of May 4, 1889, which were cured by applications of corrosive sublimate. The affected parts were wiped off with a strong solution of perchloride of mercury (1 to 500), and afterward dressed with lint soaked in a similar solution (1 to 1000). The beneficial effects of this treatment were immediately observable; healthy granulations soon made their appearance, and the wound quickly contracted. As soon as a healthy condition of the wound was insured the treatment was discontinued, and simple dressings substituted.

Preventive Treatment of Diabetic Coma.—DR. STADELMANN, of St. Petersburg, is of the opinion that the coma in diabetes may always be prevented by prompt treatment. He regards the coma as an acid poisoning of the blood, and recommends strong doses of alkalies. He gives the following formulæ:

I. ℞.—Citric acid	. .	℥ij.
Carbonate of soda	. .	℥v.
Saccharine	. .	2 grains.
Carbonated water	. .	℥v.
Spirits of menthol	. .	gtt. iij.—M.

Two or three doses a day.

II. ℞.—Tartrate of soda	. .	℥ijss.
Carbonated water	. .	℥f.vss.
Saccharin	. .	2 grains.
Essence of lemon	. .	♏xl.—M.

The above Stadelmann claims to lessen greatly the œdema and prevent coma. The solutions may be diluted in pure water.—*Journal de Méd. de Paris*, April 28, 1889.

A Simple Inhaler.—It may be useful to others to mention the following very simple mode of inhaling volatile remedies, such as pumiline, menthol, eucalyptus, etc., for the relief of some affections of the throat and lungs. The device is suggested by E. E. MADDOX, M.D.

Coil a piece of paper into the shape of a cigarette, and fix it with gum. Then insert into one end a small uncompressed piece of absorbent cotton-wool, upon which a drop or two of the desired medicament has been poured. Air is now drawn through the tube by the patient, who holds the other end between his lips. This plan is by many patients, especially by men, preferred to the use of any form of respirator, or to inhalations mingled with steam. These last, moreover, have a relaxing effect in some atonic conditions of the throat.

Of a number of remedies, including menthol, inhaled in this way by a patient suffering from pulmonary phthisis, I found that oil of peppermint gave most satisfaction. A small tube of vulcanite like a cigarette-holder at one end, with a raised flange or border to be held within the lips, would doubtless answer still better; but an inhaler, which, when needed, can be made on the spot, has advantages of its own.—*The Practitioner*, May, 1889.

Creolin and Cholera Bacteria.—DRS. S. SIRENA and G. AGLESSI, of Florence, have found that even weak solutions of creolin act most powerfully upon the cholera bacilli. Eight to ten drops of a three per cent. solution of creolin added to a culture of pure cholera bacilli will sterilize the latter in five minutes; four drops will sterilize it in an hour, and five drops in half an hour. It has, however, been ascertained that solutions of creolin lose their strength in time, and should, therefore, be always made fresh. Creolin solutions also immediately sterilized cultures containing typhoid bacilli.—*Centralbl. für klin. Med.*, May 11, 1889.

For the Removal of Freckles.—

℞.—Chloride of ammonium. . . ℥f.j.
Hydrochloric acid. . . . ℥f.jss.
Glycerine . . . . . ℥f.j.
Lait virginal[1] . . . . ℥f.jss.—M.

Apply to the freckles morning and evening with a camel's-hair brush. Their complete disappearance is said to be speedy.—*L'Union Médicale*, April 25, 1889.

A New Mydriatic.—BAMBERGER and MÜLLER (*Berichte der Chem. Ges.*) have prepared from hydronaphthylamine a compound which promises to prove a powerful mydriatic, bearing the systematic name of tetra-hydro-beta-naphthylamine, and having the formula $C_{10}H_7H_4NH_2$. According to Professor Filehne, of Breslau, the instillation of a small quantity of a five per cent. solution causes the dilatation of the pupil of the eye treated only, though after absorption of a minute quantity both eyes become affected. The dilatation is greater than that produced by atropine. This compound is said (*Chemical Gazette*) to act as a mydriatic by stimulating the nerve-endings instead of by paralyzing the muscles of contraction as does atropine.—*The British Med. Journ.*, May 18, 1889.

Quinine used Hypodermatically in Malaria.—DR. J. A. CORREA DE CARVALHO has recently used hypodermatic injections of quinine in cases of malaria with marked success. He considers that the intolerance of quinine by the stomach is often the cause of its uselessness in malaria. He uses the following formula for injection:

℞.—Hydrochlorate of quinine . . 15½ grains.
Hydrochloric acid . . . q. s.
Distilled water . . . . 32m.—M.

The Care of the Hands of Surgeons.—The hands of surgeons are frequently roughened and cracked by frequent immersion in bichloride and carbolic acid solutions. DR. GEORGE MAYER, of Berlin, has found that if, after they have been thoroughly washed, a small quantity of lanolin is rubbed over the hands of the operator, it will keep them smooth, and also do away with that unpleasant numbness which follows long immersion in strong antiseptic solutions. As a most agreeable preparation for chapped hands he give the following:

℞.—Lanolin. . . . . ℥jss.
Vanillin . . . . . 2 grains.
Oil of roses . . . . gt. j.—M.

—*Centratbl. für Chir.*, April 20, 1889.

Naphthol in the Treatment of Purulent and Granular Conjunctivitis.—The *Revue gén. de Clin. et de Thérap.*, April 25, 1889, gives the following formulæ, which have been used with success by DR. DUPORT in the ophthalmological clinic of Hôtel-Dieu in Paris.

I. For purulent infantile ophthalmia:

1. ℞.—α Naphthol . . . . 1 part.
Alcohol . . . . 3 parts.
Distilled water . . . 3000 "

Apply two or three times daily.

2. ℞.—α Naphthol . . . . 1 part.
Distilled water . . . 5000 parts.

Cauterize with nitrate of silver two or three times daily, and apply the above lotion six or eight times during the day.

II. For granular conjunctivitis:

℞.—β Naphthol . . . . 1 part.
Vaseline . . . . . 300 parts.

To be applied daily. The strength of the ointment may be increased according to indications.

III. In pannus the following has been used with success:

℞.—α Naphthol . . . . 1 part.
Vaseline . . . . . 300 parts.

Apply every morning.

Also

℞.—α Naphthol . . . . 1 part.
Distilled water . . . . 2500 parts.

To be used as a lotion four times daily.

Treatment of Alopecia.—

℞.—Tincture of jaborandi, Tincture of cantharides, Soap liniment, Tincture of pyrethrum . . āā ℥ijss.
Spirits of citron, Tincture of tolu, Tincture of vanilla . . āā ℥jss.

Apply every morning and evening with friction.—*Revue de Thér. Med.-Chir.*, May 1, 1889.

Treatment of Corns.—DR. C. MCDERMOTT writes to the *British Medical Journal*, April 28, 1889, that a saturated solution of salicylic acid in flexible collodion is a most efficient remedy for corns. The solution should be applied to the corns twice a day. In less than two weeks their removal will be complete.

The Influence of Moderate Exercise upon the Digestion.—DR. COHN (*Centralblatt für klinische Medicin*, May 4, 1889) has recently conducted a long series of careful experiments relative to the influence of moderate exercise upon digestion. His experiments were confined to dogs, and his results are as follows: When the animal is at rest the digestion begins in an hour after the food has been taken, is at its height in two hours and then gradually decreases until it is complete, the entire process taking about five hours. An entirely different result, however, was observed in dogs taking moderate exercise after the meal. In these the process of digestion was not at its height until five hours after the food had been taken and was not complete in six hours. Dr. Cohn concludes that exercise retards digestion in dogs at least.

Artificial Carlsbad Salts.—DR. ZIEMSSEN, in the *Revue de Thér. Méd.-chir.*, May 15, 1889, gives the following formula for artificial Carlsbad salts:

℞.—Sulphate of sodium . . . 40 parts.
Carbonate of sodium . . 6 "
Chloride of sodium . . . 1 part.—M.

Dissolve in hot water, evaporate, and pulverize the residue. Dose, half teaspoonful in hot water.

[1] *Lait virginal*, French cosmetic, prepared by dropping alcoholic tincture of benzine into water until the mixture becomes perfectly white.

THE MEDICAL NEWS.

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THE CALAMITY AT JOHNSTOWN, AND ITS LESSONS.

THE appalling disaster which has desolated the valley of the Conemaugh with its overwhelming destruction of life and property, has aroused a mighty throb of sympathy and a generous and widespread response to the cry for relief. The medical profession, true to its traditions and instincts, has promptly considered the needs of general medical assistance, and at Pittsburg and Philadelphia relief corps were immediately organized, the volunteers dropping their work at home to repair to the scene of the floods to give their professional services to its maimed and suffering victims.

The members of our own profession have been no less unfortunate than the other inhabitants of the valley—some have lost their lives; others have survived to find swept away some or all of their families, their homes, and their property. To take measures for their relief, the President of the College of Physicians of Philadelphia and the President of the Philadelphia County Medical Society promptly called meetings and Dr. W. W. Keen, President of the County Society, at once authorized Dr. Flick, a member of the Society now at Johnstown, to draw upon him for a liberal sum to aid in supplying the more immediate and pressing needs of the physicians of the valley and their families.

THE MEDICAL NEWS has ever endeavored to realize that its readers regard it primarily as a medical *newspaper*. During the past seven or eight years no great public event exhibiting any phase of interest to the medical profession has been allowed to pass without the fullest and promptest details being procured and laid before its readers. In pursuance of this policy, a member of the editorial staff was promptly despatched to Johnstown, and in spite of the great difficulties to be overcome, both in getting to the spot and in transmitting the news over the overburdened wires, a concise and scientifically interesting report of his investigations will be found in another column.

HE has read history to little purpose who does not perceive that in every catastrophe there is concealed the germ of some future benefit to mankind. The injuries inflicted, and the sorrows and sufferings endured, have an important lesson for the immediate survivors, for the community, and for every individual in what art or business soever he may be engaged. The events that occurred recently in Western Pennsylvania possess psychological, hygienical, and medical interests of supreme value. We purpose, now and here, to set before our readers such views of them as may seem conformable to the state of facts brought out by these terrible experiences.

The influence exerted upon the health of the living by the decomposition of dead bodies is now the supreme question. A single phrase states the truth of the matter. It has been said that "It is the living, not the dead, man we have to fear." Although a truth, it requires a modification under some circumstances. As the most pressing question of municipal hygiene at Johnstown, how should it be decided?

Many facts have proved that the gases and organic matters developed by decomposition of human remains are not necessarily injurious. It may be said, indeed, they are not injurious at all, if due care be given to personal hygiene, and quick escape of gases be secured by proper ventilation.

The gases of decomposition and the organic matter may under some circumstances act injuriously. Breathing continuously air thus contaminated, and never pure air at any time, human health gradually deteriorates. Special diseases are not produced, but the composition of the blood and the relative proportion of red and white corpuscles are changed, ulceration of the mucous membrane of the lower small intestine takes place, and the nutrition fails.

The cachectic state thus induced favors the development of such diseases as typhoid, diphtheria, etc.

Under some circumstances human remains can be the source of disease. Subjects dead of smallpox, diphtheria, fevers, etc., contain the germs of these diseases—the *materies morbi*—for a short time; but when decomposition takes place the contagium is destroyed. Decomposition of the body, which effects the return to its primal elements, is nature's mode of ending the enormous evils which would have filled the space between death and life.

Decomposition is a function of living organisms; it is a fermentation in which microörganisms play the essential part. The organisms in their growth and pullulation consume materials and resolve themselves into new products. It was most unfortunate that sentimental considerations, founded in a totally false conception of things, should have interfered with the burning of bodies started by accident. The physicians advised—if we understand aright—that the large collection of bodies in a great accumulation of drift which was then briskly burning, be permitted to remain and be disposed of by burning—a swift return to the primary elements, instead of the return by slow combustion when placed in the ground.

Although the earth above a decaying body acts as an oxidizer, it is clear that in the burials now going on at Johnstown sufficient regard cannot be paid to sanitary considerations. Insufficient care in burying the bodies, shallow graves, and a loose soil combine to make the result exceeding hurtful, for the air will contain at all times the gases of decomposition. Although special diseases are not produced, the health of individuals breathing such an atmosphere must deteriorate and make them suitable subjects for the rise and spread of serious epidemics. Furthermore, in so many subjects there could hardly fail to be cases of disease, such as typhoid, diphtheria, scarlet fever, whose germs have strong viability, and will survive all the agents employed for their destruction, because protected by their environment.

Morbific matters—disease germs—during the process of decomposition now going on, will be liberated, and under the circumstances secure admission to potable waters. We understand that these newly improvised graves are placed on the hillsides and in situations for their products of decomposition to secure admission to the surface wells, to the springs and streams about them. How certain it is that in course of time disease germs will thus enter the system of many people, with the usual result.

If the bodies must be buried, what disinfectants beside heat or destruction by fire can be utilized here?

The gases of decomposition may be destroyed by such agents as chlorine and the chlorides, under these circumstances, if effectively used and in sufficient quantity; but even if this be done it is unlikely that the pathogenic microbes will be disposed of, for in inner parts, surrounded by a tough environment, they cannot be reached by disinfectants of the most powerful kind. Chloride of lime is the best agent to be used for this purpose, because it contains much free chlorine, if *it be genuine—i. e.*, if it contains the proper proportion of chlorine gas.

It does not suffice, however, to place chloride of lime in the grave and on the body. If the disinfection is to be effective, the abdominal cavity at least should be opened and the lime placed there in full quantity.

THE PROPHYLAXIS OF TUBERCULOSIS.

SEVEN years have elapsed since the announcement of Koch's discovery of the tubercle bacillus, and his demonstration of its causal relation to the entire group of the tuberculous diseases. On the whole, it cannot be said that the hopes to which that discovery gave rise have been realized. The treatment of pulmonary phthisis has during this time undergone in rapid succession a series of startling and erratic changes. In so far as these changes have had for their basis any theory concerning the direct destructive action of drugs upon the bacillus within the tissues of the organism, they have led, one after another, to disappointment. To those who have been at the pains of informing themselves of the nature of the parasite, its mode of growth and distribution in the tissues, and the way in which its local and constitutional effects are produced, the rigid experiments of Trudeau were not needed to demonstrate the uselessness of attempts to discover a direct germicide treatment.

The attention of the profession has, however, been aroused, and the treatment of tuberculosis, and in particular of consumption, has once more become a question of the day. This time, thanks to the science of bacteriology, it is no question of mere speculation, but has for its point of departure a con-

nected group of well-ascertained facts. Dietetics, hygiene, respiratory gymnastics, climate have been brought into closer and more profitable service to the consumptive. If medicaments selected upon false theories have proved useless, the extra-medicinal management of the disease has been more reasonable and effective. Life has often been prolonged and cures have been occasionally accomplished. But the disappointments of a too sanguine therapy have been more than counterbalanced by the results of the efforts to which they have stimulated the profession. Among these results have been, not only the dispersion of many traditional errors, but also the acquisition of exact knowledge of the life-history of the tubercle bacillus, both within the animal organisms which it infests, and outside of them.

CORNET has shown (*Zeitschrift für Hygiene*, V. Band) that the dust collected from one hundred and forty-seven different hospitals, insane asylums, private houses occupied by consumptives, and crowded streets, contained in forty instances tubercle bacilli; in sixty-nine it was, however, free from them; and in the remainder the death of the animals used in the experiments being quickly brought about by the action of other bacteria, the result was indeterminate. The dust from twenty-seven rooms not occupied by consumptives showed no tubercle bacilli. Even in the apartments of severe cases, bacilli were not discovered save when the patient expectorated into handkerchiefs or upon the floor, and in no case was the dust of the walls infectious where spit-cups were exclusively used, though the bacilli were abundant in the sputum.

The deduction that the tubercle bacillus is only found in the immediate neighborhood of consumptives, is from these facts obvious. Cornet's further investigations (*Berliner klin. Wochenschrift*, 1889, Nos. 12, 13, 14, 15) strongly support the conclusion that infection occurs chiefly from dried sputum floating in the atmosphere and drawn into the lungs by the inspired air.

When infection takes place by direct inoculation elsewhere than in the lungs, the early lesions are invariably found at the point of inoculation and in the neighboring lymph-glands. The assumption that the lungs are the seat of an especial predilection for the development of the bacillus is absolutely false. The preponderance of pulmonary consumption over other forms of tuberculosis is to be explained by the greater exposure of the organs of respiration to inoculation.

Cornet regards the danger of infection by means of bacilli thrown off with the fecal matter in ulceration of the intestine, or in the urine in urino-genital tuberculosis, as extremely slight. Intestinal tuberculosis, from the use of imperfectly cooked meat from tuberculous animals, he regards as rare. Of greater importance is the consumption of milk from tuberculous cows, unless it has been thoroughly cooked, this being doubtless a frequent cause of intestinal tuberculosis in children.

The author refers to the experiments of Naegeli and others, which show that air passing over a moist surface does not take up bacilli or spores. He concludes from these experiments that it is absolutely impossible for the air-passages, for tuberculous cavities, or for the expectoration, so long as it remains moist, to render the expired air infectious. The consumptive is only dangerous by means of his expectoration, and not even by this so long as it remains moist. The moment that it dries it passes beyond our control, and, in the form of fine bacilli-bearing particles wafted about in the air, becomes the ordinary means of transmission.

Cornet concludes his interesting paper with a series of definite rules for the treatment of the expectorated matters, and for the prevention of the distribution of the tubercle bacilli. The subject as thus presented reduces the prophylaxis of tuberculosis to the simplest conceivable form, but, owing to the practical difficulties in the way of carrying it into effect, it would be Utopian to look forward to immediate results of importance on a great scale.

Cornet's suggestions have, however, been formulated in a series of regulations presented to the public by the President of the Police Board in Berlin, which are to be found in the issue of THE MEDICAL NEWS of May 25th, and in other columns of our issue of to-day we present an admirable address before the Pennsylvania State Medical Society by Dr. J. C. Wilson, reviewing the latest advances in the etiology and prophylaxis of tuberculosis, and a report for popular use embodying the knowledge of the day on its prevention, which has been prepared by Drs. Biggs, Prudden, and Loomis, at the request of the Board of Health of New York City.

THE fortieth annual meeting of the American Medical Association will be held at Newport, R. I.,

from June 25th to 28th, under the Presidency of Dr. W. W. Dawson, of Cincinnati. The general addresses will be delivered as follows: In Medicine, by Dr. William Pepper, of Philadelphia; in Surgery, by Dr. P. S. Conner, of Cincinnati; in State Medicine, by Dr. W. H. Welch, of Baltimore. The list of papers to be read in the various sections is lengthy and includes an unusually large number of attractive titles, and reflects great credit upon the officers of sections to whose energy this excellent programme is largely due.

The *Chairmen* of Sections are as follows:

Medicine, Dr. F. C. Shattuck, of Boston.

Surgery, Dr. N. P. Dandridge, of Cincinnati.

Obstetrics, Dr. W. H. Wathen, of Louisville.

State Medicine, Dr. J. Berrien Lindsley, of Nashville.

Ophthalmology, Dr. George E. Frothingham, of Ann Arbor.

Laryngology and Otology, Dr. W. H. Daly, of Pittsburg.

Diseases of Children, Dr. J. A. Larrabee, of Louisville.

Medical Jurisprudence, Dr. J. G. Kiernan, of Chicago.

Dermatology and Syphilography, Dr. L. Duncan Bulkley, of New York.

Dental and Oral Surgery, Dr. F. H. Rehwinkel, of Chillicothe.

Dr. Horatio R. Storer, Newport, is Chairman of the Committee of Arrangements.

We understand that one of the principal social features of the meeting will be a steamboat excursion after adjournment on Friday, given by the Rhode Island Medical Society, to Providence for the inspection of the Rhode Island and Butler Hospitals and, on the return trip, a stop will be made at a shore resort, when the members will be introduced to the pleasures of an old-fashioned clam-bake.

The programme, with its long list of admirable papers, gives every promise of this being one of the most interesting and attractive meetings that the Association has ever held.

DR. A. L. GIHON, Chairman, requests us to state that the Rush Monument Committee will meet in Right Gallery Room at Music Hall, Newport, R. I., on Tuesday, June 25th, at 1 P. M., or immediately after adjournment of the morning session of the American Medical Association. The attendance of all interested in this commendable and patriotic project is invited.

Collections and subscriptions should be forwarded to the treasurer, Dr. Joseph M. Toner, 615 Louisiana Avenue, Washington, D. C., before June 15th.

OWING to the interruption to railroad travel caused by the floods and the impossibility of a large proportion of the members reaching Pittsburg last Tuesday for the annual meeting of the Pennsylvania State Medical Society, those present very properly adjourned the meeting until September, without further transaction of business.

THE Maine Medical Association will hold its thirty-seventh annual meeting at Portland, on Tuesday, Wednesday, and Thursday of next week, under the presidency of Dr. S. H. Weeks, of Portland.

THE New Hampshire Medical Society will hold its ninety-eighth anniversary on June 17th and 18th, at Concord, under the presidency of Dr. Samuel C. Whittier, of Portsmouth.

DR. SAMUEL PRESTON MOORE, formerly Surgeon-General in the Confederate Army, died at Richmond, Va., on the 31st of May, aged seventy-four. He was appointed an assistant surgeon in the U. S. Army in 1856, and served in that capacity through the Mexican War and up to the time of the passage of the act of secession by his native State, South Carolina, when he resigned to enter the service of the Confederacy. After the close of the war he settled in Richmond. He took an active interest in educational matters and was a member of the Richmond School Board.

SPECIAL ARTICLE.

THE MEDICAL ASPECT OF THE DISASTER AT JOHNSTOWN.

(*By Telegraph from a Staff Correspondent.*)

JOHNSTOWN, PA., June 6, 1889.—Notwithstanding the fact that many of the reporters of the daily papers have sent messages from here indicating that diseases the result of exposure are exceedingly common, the fact is, that in the three largest hospitals very few cases of any kind exist, and, in over ninety per cent. of these, the individuals are suffering from injuries occurring both during and after the flood. The cases of pneumonia are very few, and the report that measles is to a large extent epidemic is entirely false. The truth is, that one or two children have

exhibited symptoms of this disease, the reports of which, in the present state of popular excitement, have grown in their severity with each mile that they have travelled. So far as the spread of any disease, such as this, is concerned, we feel quite confident that the conditions present are, with a few exceptions, eminently prophylactic in their character. The children who suffer are living in tents, which are necessarily very thoroughly ventilated, and crowding is impossible. So far as we have been able to learn, the history of any exposure on the part of the children affected with measles is very dim.

Too much care cannot be exercised in the selection and dispensing of much of the second-hand clothing which is sent forward in the relief trains by charitable persons. From some of the clothing which we saw distributed, we feel sure that lack of such care may readily result in the production of a large amount of contagious disease.

The danger of malarial poisoning is, we believe, not present, simply because the conditions favorable to the production of such miasms are absent. The water, sweeping through the valley with enormous force, has carried, in the majority of cases, the soft mud of the river banks to distant and low-lying bottom-lands, and has covered the entire site of Johnstown with a layer of pure sand and gravel varying in depth from a few inches to a foot. As the consequence of this, all cesspools have not only been thoroughly washed out, but afterward filled with sand; every particle of dirt and city filth has been washed away, and it would be hard to find, hygienically speaking, a more cleanly spot than the main portions of what was once Johnstown. The danger will be the accumulation of new filth, owing to the large number of strangers living in tents and the outdoor life of the survivors.

There is absolutely no use in sending more physicians here, save that by their training they may assist in the carrying out of measures belonging to the realm of preventive medicine. With the exception of a few who are assisting in hospitals, the majority of Philadelphia physicians have been detailed for the purpose of overseeing the thorough cremation of all dead animals. The only other measures which are adopted are those directed against the decomposition of human flesh, which popular clamor will not allow to be touched by fire. All other attempts to disinfect such sources of disease, without the aid of great heat, cannot prove but useless, for the bodies, as a general rule, are piled up in a mass of rubbish made up of old lumber, which is arranged in such a way that it is doubtful if a river of disinfectants could reach them, the débris acting as a shed. In an endeavor to obtain the identification of bodies, they have been kept, prior to this date, for too long a time previous to burial. This has been largely done away with by improved rules, ordered by cooler heads from outside relief corps.

The mental condition of almost every former resident of Johnstown is one of the gravest character, and the reaction which will set in when the reality of the whole affair is fully comprehended can scarcely fail to produce many cases of permanent or temporary insanity. Most of the faces that one meets, both male and female, are those of the most profound melancholia, associated with an almost absolute disregard of the future. The nervous system shows the strain it has borne by a tremulousness of the hand and of the lip, in man as well as in woman. This nervous state is further evidenced by a peculiar intonation of words, the persons speaking mechanically, while the voices of many rough-looking men are changed into such tremulous notes of so high a pitch, as to make one imagine that a child, on the verge of tears, is speaking. Crying is so rare that your correspondent saw not a tear on any face in Johnstown, but the women that are left are haggard, with pinched features and heavy, dark lines under their eyes. Indeed, the evidence of systemic disturbance is so marked in almost every individual who was present at the time of the catastrophe, that it is possible with the eye alone to separate the residents from those outside.

Every thing required in the way of surgical appliances seems to be on hand, but medicines are scarce and will probably be needed much more in the next few days than heretofore.

A fact in favor of the controlling of any malady is to be found in the very general exodus of the townspeople who crowd the platform of departing trains. There can be no doubt that this movement should be encouraged to the greatest possible extent, and it would be well if places away from Johnstown, at not too great distance, could be opened for the reception of those who, while not entirely disabled, are useless at home.

The scarcity of pure spring water which is not tainted by dead animal matter is a pressing evil for consideration, but we doubt if this is as important a fact at Johnstown as it is further down the river, owing to the large amount of decomposing flesh in the water at this latter point. No disinfectant can reach such a cause of disease, save the action of the large volume of water which dilutes all poisonous materials.

The State Board of Health should warn the people of the portions of the country supplied by the Conemaugh of the danger of drinking its waters for weeks to come.

ON THE PREVENTION OF TUBERCULOSIS.

THE following report has been forwarded to the Board of Health of New York City in response to the accompanying resolution of the Board.

Resolved, That Drs. T. M. Prudden, H. M. Biggs, and H. P. Loomis, the pathologists of this department, be and are hereby requested to formulate a brief and comprehensive statement regarding the contagiousness of tuberculosis in man, stating therein the evidence of the same and recommending in the briefest possible manner practicable the simplest means of protection from its influence.

REPORT.

The disease known as tuberculosis and, when affecting the lungs, as pulmonary tuberculosis (consumption), is very common in the human being and in certain of the domestic animals, especially cattle. About one-fourth of all deaths occurring in the human being during adult life is caused by it, and nearly one-half of the entire population at some time in life acquires it. The disease is the same in nature in animals and in man, and has the same cause.

It has been proven beyond a doubt that a living germ, called the tubercle bacillus, is the cause and the only cause of tuberculosis. It does not seem necessary to state the facts upon which this assertion is based, for the observation first made by Robert Koch, in 1882, has been confirmed so often and so completely, that it now constitutes one of the most absolutely demonstrated facts in medicine.

Tuberculosis may affect any organ of the body, but most frequently first involves the lungs. When the living germs find their way into the body they multiply there, if favorable conditions for their growth exist, and produce small new growths or nodules (tubercles) which tend to soften. The discharges from these softened tubercles, containing the living germs, are thrown off from the body. In pulmonary tuberculosis these discharges constitute, in part, the expectoration. The germs thus thrown off do not grow outside the living human or animal body, except under artificial conditions, although they may retain their vitality and virulence for long periods of time, even when thoroughly dried. As tuberculosis can only result from the action of these germs, it follows from what has just been said, that when the disease is acquired, it must result from receiving into the body the living germs that have come from some other human being or animal affected with the disease.

It has been abundantly established that the disease may be transmitted by meat or milk from tubercular animals. The milk glands in milch cows often become affected with the disease when their lungs are involved, and the milk from such animals may contain the living germs and is capable of producing the disease. Among stall-fed dairy cows 20 or 30 per cent. are sometimes found to be affected with the disease. Tubercular animals are also frequently killed for food; their flesh sometimes contains the germs, and if not thoroughly cooked is capable of transmitting the disease. Boiling the milk or thoroughly cooking the meat destroys the germs. Although the meat and milk from tubercular animals constitute actual and important sources of danger, the disease is acquired, as a rule, through its communication from man to man.

Tuberculosis is commonly produced in the lungs (which are the organs most frequently affected) by breathing air in which the living germs are suspended as dust. The material which is coughed up, sometimes in large quantities, by persons suffering from consumption contains these germs, often in enormous numbers. This material when expectorated frequently lodges in places where it afterward dries, as on the streets, floors, carpets, clothing, handkerchiefs, etc. After drying, in one way or another, it is very apt to become pulverized and float in the air as dust.

It has been shown experimentally, that dust collected from the most varied points, in hospital wards, asylums, prisons, private houses, etc., where consumptive patients are present, or have been present, is capable of producing tuberculosis in animals when used for their inoculation. Such dust may retain for weeks its power of producing the disease. On the other hand, dust collected from rooms in institutions or houses that have not been occupied by tubercular patients does not produce the disease when used for the inoculation of animals.

These observations show that where there are cases of pulmonary tuberculosis, under ordinary conditions, the dust surrounding them often contains the tubercle bacilli; and persons inhaling the air in which this dust is suspended may be taking in the living germs. It should, however, be distinctly understood that the breath of tuberculous patients, and the moist sputum, received in proper cups, are not elements of danger, but only the dried and pulverized sputum. The breath and moist sputum are free from danger, because the germs are not dislodged from moist surfaces by currents of air. If all discharges were destroyed at the time of exit from the body, the greatest danger of communication from man to man would be removed.

It then follows, from what has been said, that tuberculosis is a distinctly preventable disease.

It is a well-known fact that some persons, and especially the members of certain families, are particularly liable to tuberculosis, and this liability can be transmitted from parents to children. So marked and so frequent is this liability, and so frequent is the development of the disease in particular families, that the affection has long been considered hereditary. We now know that tuberculosis can only be caused by the entrance of the germ into the body; and that this transmitted liability simply renders the individual a more easy prey to the living germs when once they have gained entrance.

The frequent occurrence of several cases of pulmonary tuberculosis in a family is, then, to be explained, not on the supposition that the disease itself has been inherited, but that it has been produced after birth by transmission directly from some affected individual. Where the parents are affected with tuberculosis the children from the earliest moments of life are exposed to the disease under the most favorable conditions for its transmission, for not only is the dust of the house likely to contain the bacilli, but the relationship also between parents and children, especially between mother and child, are of that close and intimate nature especially favorable for the transmission by direct contact.

If, then, tuberculosis is not inherited, the question of prevention resolves itself, principally, into the avoidance

of tubercular meat and milk, and the destruction of the discharges, especially the sputum, of tubercular individuals. As to the first means of communication, those measures of prevention alone answer the requirements which embrace the governmental inspection of dairy cows and of animals slaughtered for food, and the rigid exclusion and destruction of all those found to be tubercular.

For the removal of the second means of communication—*i. e.*, the sputum of tubercular individuals—the problem is simple when the patients are confined to their rooms or houses; then wooden or pasteboard cups with covers should always be at hand for the reception of the sputum. These cups are supported in simple racks, and at least once daily, or more frequently if necessary, should be removed from the racks and thrown with their contents into the fire.[1]

The disposition of the expectoration of persons who are not confined to their rooms or homes is a far more difficult problem. The expectoration certainly should not be discharged on the street, and the only practical means for its collection seems to be in handkerchiefs, which, when soiled, should at the earliest possible moment be soaked in a solution of five per cent. of carbolic acid and then boiled and washed. Handkerchiefs thus soiled are exceedingly dangerous factors in distributing tubercle bacilli; for when the sputum becomes dry, it is easily separated in flakes from the cloth and then soon becomes pulverized and suspended as dust.

It becomes evident from what has been said, that the means which will most certainly prevent the spread of this disease from one individual to another, are those of scrupulous cleanliness regarding the sputum. These means lie largely within the power of the affected individual. It is, furthermore, to be remembered that consumption is not always, as was formerly supposed, a fatal disease, but that it is in very many cases a distinctly curable affection.

An individual who is well on the road to recovery may, if he does not with the greatest care destroy his sputum, diminish greatly his chances of recovery by self-inoculation.

While the greatest danger of the spread of the disease from the sick to the well is in private houses and in hospitals, yet, if this danger is thoroughly appreciated it is, for the most part, quite under control, through the immediate destruction of the sputum and the enforcement of habits of cleanliness. But in places of public assembly, such as churches and theatres, particularly the latter, the conditions are different, and safety would seem to depend largely upon a dilution and partial removal of the floating and possibly dangerous dust by means of adequate ventilation.

Rooms in private houses and hospital wards that are occupied by phthisical patients should from time to time be thoroughly cleaned and disinfected, and this should always be done after they are vacated, before they are again occupied by other individuals.

Steamship companies should be obliged to furnish separate apartments for consumptive persons, so that no person in the exigencies of travel need be forced to share his room with one who might be a source of active danger to him.

We desire especially to emphasize the following facts:

1st. That tuberculosis is a distinctly preventable disease;

2d. That it is not directly inherited; and

3d. That it is acquired by the direct transmission of the tubercle bacillus from the sick to the healthy, usually by means of the dried and pulverized sputum floating as dust in the air.

The measures, then, which are suggested for the prevention of the spread of tuberculosis are:

1st. The security of the public against tubercular meat and milk, attained by a system of rigid official inspection of cattle;

2d. The dissemination among the people of the knowledge that every tubercular person may be a source of actual danger to his associates, if the discharges from the lungs are not immediately destroyed or rendered harmless; and

3d. The careful disinfection of rooms and hospital wards that are occupied or have been occupied by phthisical patients.

HERMANN M. BIGGS,
T. MITCHELL PRUDDEN,
HENRY P. LOOMIS,
Pathologists to the New York City Health Department.

[1] A cheap and efficient cup answering this purpose is now on the market and is supplied by druggists.

IN accordance with the principles of the prophylaxis of phthisis advanced by Dr. Cornet, DR. DETTWEILER, of Frankenstein, has designed the following pocket spit-cup or flask, which will obviate the necessity of expectorating either on the floor, or street, or into a handkerchief.

The flask, which is described in the *Therap. Monatshefte*, May, 1889, holds about three fluid-ounces. It is made of blue glass, and is flat. There are two openings, one at the top and one at the bottom; both have metallic screw-caps. The upper opening, which is the largest, has, in addition, a spring cover or cap, which closes tightly; also, a polished metal funnel, which reaches half-way down into the flask. This funnel acts similarly to that of certain ink bottles, and prevents the spilling of the contents of the flask, even if the cap is left open. The lower opening is designed to aid a thorough cleaning of the flask when necessary. The instrument can be sold at a cost of less than fifty cents, can be kept perfectly clean, closes securely, and is altogether admirably adapted to the requirements of consumptives.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eleventh Annual Congress, held in Washington, D. C., May 30 and 31, and June 1, 1889.

THURSDAY, MAY 30TH.—MORNING SESSION.

THE PRESIDENT, DR. ETHELBERT CARROLL MORGAN, of Washington, called the Association to order, and delivered the

PRESIDENTIAL ADDRESS.

He welcomed the Association to the National Capital, and said that its noble work during its eleven years of existence has resulted in placing laryngology upon a substantial basis, and in demonstrating its truths and benefits alike to the profession and to suffering humanity. The outlook for laryngology was never brighter than at present. The tenth volume of the *Transactions* is now in press, and in addition to the papers read at the last meeting of the Association, contains a table of contents of all the papers read to the Association since its organization.

DR. E. CARROLL MORGAN then presented a

REPORT OF THE REMOVAL OF A SUPERNUMERARY TONSIL.

The patient, a male, æt. twenty-six years, vigorous, and otherwise healthy, came under observation September 7, 1886, with what he feared was malignant disease of the pharynx. The growth was first discovered four years previous. It had occasioned considerable pain, especially after smoking. During the past two months the growth had rapidly increased in size, and the pain had become of a shooting character, extending to the ears, larynx, and top of the head. Examination revealed a pendant tumor between the right palatine folds near the uvula, and protruding beyond their borders half an inch. The tumor was as large as a small almond. Its color, as well as that of the pillars, was a dusky red. Slight engorgement of the cervical glands appeared to exist. The patient's mother had died of cancer of the breast. Local and general treatment having no effect, the tumor was excised, and the raw surface cauterized with the galvano-cautery. In ten days the wound had healed. The patient was recently examined, and there has been no recurrence, now four years after the operation. The specimen removed was examined by Dr. W. M. Gray, Microscopist to the Army Medical Museum, who stated that its structure was identical with that of a faucial tonsil which had undergone hypertrophy. The location and microscopic characters of this tumor, as well as the history of the patient prior to and subsequent to the operation, prove that this was a hypertrophied accessory or supernumerary tonsil, an exceedingly rare anomaly. A search of the literature had revealed only two other cases of a similar character reported by Jurasz, in 1885. In the first case the tumor was as large as a hen's egg, and was found to spring from the lower anterior portion of the right posterior pillar by a small and short pedicle. It was removed, and found, on microscopic examination, to present the structure of a hypertrophied tonsil. In the second case the tumor was of the size of a hazel-nut, and attached below the right tubal prominence. The microscope revealed a structure similar to that of the faucial tonsil.

Conclusions.—1. The lymphoid follicles of the soft palate and pharynx are liable to be aggregated, resembling in arrangement the faucial tonsil. 2. The condition is exceedingly rare, since, excepting the so-called "pharyngeal tonsil," the author has found but one case reported. 3. These lymphoid follicles are also liable to hypertrophy. 4. Such hypertrophies probably occur oftener than is generally supposed. 5. The indications for operative interference in this condition are identical with those for the faucial tonsil.

DR. D. BRYSON DELAVAN, of New York, thought that possibly cases of supernumerary tonsil were not so infrequent as was commonly supposed. Pedunculated tumors of the tonsil which on examination show a fibroid structure are not rare, and it may be that they are degenerated supernumerary tonsils, just as the tonsil may, from long-continued inflammation, become the seat of fibroid change.

DR. GEORGE W. MAJOR, of Montreal, then read a paper on

THE RELATION BETWEEN FACIAL ERYSIPELAS AND ERYTHEMA, ON THE ONE HAND, AND INTRA-NASAL PRESSURE ON THE OTHER.

The following cases were cited as showing that facial erysipelas may be produced by nasal conditions, particularly when they are productive of pressure.

Case I.—A girl, aged twelve years, came under observation in March, 1884, for the treatment of nasal catarrh. There was a general hypertrophic condition, with pressure of the middle turbinated body of one side against the septum. On the cheek bone of the same side there was a red patch of erythema which had existed for five months. Treatment of the nasal condition by scarification, puncture, and galvano-cautery was followed by disappearance of the erythematous rash, and it has not returned.

Case II.—A child, four years of age, was seen in February, 1885, suffering with facial erysipelas, commencing on the bridge of the nose and extending to the cheeks. It had already lasted five days, and was not disposed to yield to treatment. Both nostrils were occluded by swelling. All treatment directed to the relief of the erysipelas was suspended, and attention directed to the relief of the nasal condition. In twenty-four hours the erysipelas had disappeared.

Case III.—In the winter of 1884, a boy, aged twelve years, the subject of recurring attacks of erysipelas, was seen with an attack involving the nose and cheeks. Nasal injections were alone used, and the erysipelas disappeared in thirty-six hours.

Case IV.—February, 1889, a female, aged fifty-six, presented herself with an erythematous patch on the left cheek. This had lasted four months. There was swelling of the left turbinated bone, which pressed against the septum. Under treatment of the nose the erythema disappeared in the course of a week.

Six other cases were alluded to, in which the same condition was seen.

DR. J. O. ROE, of Rochester, had seen a number of cases of erythematous rash due to the nasal trouble. A case recently seen was that of a girl, twenty-three years of

age. There was a very red erythematous patch on the face associated with blebs. She had been treated by various physicians without benefit. In both nares the middle turbinated bodies pressed firmly against the septum. This was relieved and there was immediately a subsidence of the erythematous trouble. He, however, could not admit that erysipelas is due *per se* to the intra-nasal trouble. He held that erysipelas is an infectious disease due to a distinct germ. The presence of erosions in the nasal cavity would render the patient more liable to become infected.

DR. J. N. MACKENZIE, of Baltimore, said that the relation between erythema of the nose and face and intra-nasal trouble had been recognized centuries ago in the times of Willis and by Sylvius. He himself had seen many cases of this kind, but he had never seen true erysipelas due to this cause. So-called facial erysipelas seems to be comparable to an accentuation of the act of blushing—a sort of chronic blush.

DR. WILLIAM H. DALY, of Pittsburg, was not a believer in the theory of intra-nasal pressure. The evils referred to pressure are really due to intra-nasal turgescence. The condition of erythema is nothing more than a condition of hyper-nutrition due to a permanently dilated and enlarged blood supply. He believed that the term chronic facial erysipelas is a misnomer.

DR. F. I. KNIGHT, of Boston, remarked that in these cases of erythema of the nose and face he always looked for nævus and very often found it. Where the trouble has been relieved, the affection of the skin has disappeared.

DR. D. BRYSON DELAVAN, had seen several of these cases, and in three or four the erysipelatous attacks have been severe. One case, a girl of seventeen years, had recurrent attacks of severe erysipelatous swelling from the alæ of the nose extending over the cheek. These recurred at intervals of two or three weeks. There was marked turgescence of the nasal mucous membrane. This was treated topically, and with the subsidence of the catarrhal trouble the attacks of erysipelas disappeared.

DR. SAMUEL W. LANGMAID, of Boston, then reported

A CASE OF ACUTE MULTIPLE ADENITIS (SEPTIC?) ŒDEMA OF THE LARYNX WITH SPONTANEOUS CURE.

He was called to see a lady, aged forty, who had been sick for seven days, under the care of an irregular practitioner. The patient was found restless, with an anxious expression, breathing with difficulty, and with a dry, croupy cough. There was no lividity of the face, but it was stated that during the preceding twenty-four hours there had been danger of strangulation. The submaxillary glands, as well as those in the region of the neck, were much swollen. Temperature 99°; voice fairly loud and clear; no enlargement of the tonsils; nothing unusual in the naso-pharynx. With the laryngoscope a tumor, apparently as large as a filbert, was seen occupying the posterior arytenoid space. The anterior third of the vocal cord could be seen approximated and scarcely moving during respiration. He learned that the throat had not been examined until four days after the commencement of the attack. As the patient was breathing fairly well it was decided to do nothing. If necessary, the tumor in the larynx was to be incised. A few hours later something was felt to break in the throat, and a free mucoid discharge took place. Three hours later, nothing could be seen but the erect epiglottis, with mucopurulent matter welling up. There was a continued discharge, but the relief to breathing was not complete. There had been, also, the discharge of half an ounce of pus. The discharge continued for several days, and the patient gradually recovered.

It was thought that the case was in all probability due to diphtheria, the evidences of which had passed away when the author examined the throat. The patient stated that at the commencement of the illness, the throat had been sore, and that on one side she had noticed red spots on which there had been a white covering.

DR. WM. C. GLASGOW, of St. Louis, read a paper on

AN ŒDEMATOUS FORM OF DISEASE OF THE UPPER AIR-PASSAGES.

He described an œdematous form of disease which had been epidemic around St. Louis for some two years. During the existence of this affection there has been a disturbance of the ordinary catarrhal throat troubles. In all cases of this disease there is found a pale, œdematous condition of the fauces. This is a solid œdema. A peculiar glistening appearance is at times very marked. In the majority of cases the soft palate is the seat of œdema. At times the nasal mucous membrane is found in the same condition. The epiglottis and different portions of the larynx may be involved. In some cases the true cords are markedly œdematous. A swollen condition of the veins, particularly the palatine veins, is present. This sometimes causes purpura-looking spots, and the mucous membrane appears mottled. In two cases these purpura-looking spots had been seen in the trachea. In one case enlarged veins were seen on the true cord. In some cases ulceration occurs. In some cases, in addition to œdema, there were patches of exudation in different parts of the throat. These when removed leave a bleeding surface. The symptoms of the disease and the appearance of the throat preclude the diagnosis of diphtheria. In six cases spots of mycosis were seen. Glandular enlargement of the neck is quite frequent. In two cases suppuration occurred.

The symptoms are constitutional and local. The affection occurs suddenly in persons of previous good health. There is langour, weakness, and general pains throughout the body. Headache is present, usually frontal, sometimes occipital. In many cases it is simply a dull heavy feeling, in others it is an intense violent throbbing pain. Pain in the back in the region of the sacrum is a characteristic symptom. Fever is present in varying degree. In the exudative cases, the disease commences with chill followed by fever, and the temperature may reach 105°. This soon passes off, and we have a subfebrile condition remaining, probably with a temperature of 101°. This continues a short time, and then there is a return to the normal temperature. When there is simply œdema, the temperature scarcely ever rises above 101° to 102°. This remains for only twelve hours, and during the remainder of the attack the temperature is normal. The pulse is always rapid, soft, and compressible; there has been no exception to this noted. The pulse ranges between 90 and 110 per minute. Profuse sweating is often present, especially during the night. It may be localized.

The local symptoms vary with the part of the throat

involved. Sometimes they are prominent, sometimes they are wanting. Hemorrhages are common; they are usually slight, but recur frequently.

This is a constitutional disease, due, the author believes, to some change in the blood, exactly what he was unprepared to say, but probably due to microörganisms. He thought that the disease described was nothing more than influenza, the same influenza which has been described so often, particularly by Graves. The disease has not been limited to the Mississippi Valley, for he had seen cases of it from all parts of the country.

The treatment is very simple. The system must be saturated with benzoate of sodium. Under this remedy the affection subsides in a few days or hours. If left to itself, it may continue for weeks and even months.

DR. WM. H. DALY had seen a number of cases similar to those described. He did not consider the condition as one of œdema, but rather as a subacute inflammatory condition of the mucous membrane. There was a sufficient number of these cases which had thin and superficial diphtheritic patches in various parts of the fauces to warrant him in considering the disease of a diphtheroid character. This view was confirmed by the subsequent occurrence of glandular enlargement in nearly all the cases.

DR. J. C. MULHALL, of St. Louis, confirmed the statements of Dr. Glasgow from his own experience with the disease in St. Louis, and reported a case in which the affection had recurred three times.

DR. S. H. CHAPMAN, of New Haven, had seen cases similar to those reported, but agreed with Dr. Daly that they were rather of a diphtheritic character. In one case the disease attacked a child of seventeen months. In the same family was a boy, nine years of age, with well-marked diphtheria. The first thing noted in the case of the child was a dense swelling of the submaxillary gland. There was great prostration, and some fever, 101°–102°. The swelling increased until it extended from the jaw to the clavicles. There was hoarseness and difficulty of breathing, which daily increased. By the seventh day it had increased so much that deep incisions were made into the gland, but no pus was found. A tube was then inserted into the larynx, and allowed to remain four days; the child during this time was kept alive by rectal alimentation. At the end of thirteen days the swelling began to diminish. The knife was again used, and a quantity of pus discharged. The child recovered.

DR. C. E. SAJOUS, of Philadelphia, referred to a case of this disease which occurred in a young man living on a farm in New Jersey, twenty miles from any neighbors, and who had not been exposed to diphtheria. The throat presented small white patches, resembling the yellowish leathery membrane seen in diphtheria. Slight œdema of the soft palate was also present. The temperature was high through the entire course of the disease. There was incessant pain in the back and in one limb. After trying a number of remedies, he was placed upon benzoate of sodium.

DR. GLASGOW remarked that he had, at first, regarded these cases as diphtheritic. In these cases the membrane is adherent. It can be torn away, but a bleeding spot is left. Applications made it worse. If left to itself, it gradually grows thinner and thinner, until it resembles a white pearly patch. Diphtheritic membrane does not pursue such a course. The glandular enlargements always occur, even when there is no exudation. He did not think that any one would assert that this œdema was diphtheria.

DR. W. H. DALY, of Pittsburg, then made some remarks based upon a few observations of the

INTIMATE RELATIONS OF CHRONIC DISEASE OF THE UPPER AIR TRACT AND NEURASTHENIA.

His experience had led him to believe that there was an intimate relation between conditions of the intranasal cavities and neurasthenia in some of its forms. This view was based upon the study of twenty-five cases. In these cases removal of the nasal trouble was followed by relief of the neurasthenic condition, no special treatment being directed to the general condition.

DR. J. O. ROE said that most of the members had seen many such cases, and they illustrate the effect that a constant local irritation will have upon the system. A constant nagging of a local irritant will sooner or later produce a depressed condition of the system.

DR. F. W. HINKEL, of Buffalo, remarked that before we could admit that neurasthenic condition could be the result of any nasal lesion as the sole cause, a careful analysis of all the constitutional conditions would be required.

DR. S.W. LANGMAID, of Boston, thought that often the nasal trouble was the result of the neurasthenia. It often happens that operative interference fails to relieve the nasal condition because neurasthenia is not cured.

DR. SAJOUS was inclined to support rather vigorously the view of Dr. Daly. In a number of cases he had observed that there were fluctuations in the nervous condition according as the local disease improved or became worse. In one case of neurasthenia associated with deviated septum, correction of the displacement was followed by improvement in the nervous condition. The operation, however, failed to be permanent, and with a return of the deviation the neurasthenic condition recurred, to disappear again with a more thorough operation upon the septum.

AFTERNOON SESSION.

DR. JOHN N. MACKENZIE read a paper on

SOME POINTS IN THE PATHOLOGY AND TREATMENT OF DISEASES OF THE NASAL PHARYNX.

The following conclusions were presented:

1. The nasal pharynx is in quite a large proportion of individuals exceedingly sensitive to reflex-producing stimulation.

2. The areas chiefly involved are the posterior portions of the turbinated erectile tissue, and various points along the upper and posterior portions of the nasal pharynx.

3. In consequence of this extreme sensitiveness, a local pathological process which in many persons would give rise to no reflex neuro-vascular changes may awaken a host of neurotic phenomena referable not only to the region primarily involved, but also to other and even remote organs of the body. These may include cough, asthma, and various neuralgic affections; or the local structural lesion may be the starting-point of various sympathetic affections of the respiratory tract.

4. That these classes of naso-pharyngeal neuroses are explicable on the same general principles laid down in

the article on neuroses of the nose, and the pathology of the nasal and post-nasal affections is, therefore, one and the same.

5. That the treatment should be carried out according to the general directions laid down in the article just mentioned.

6. That when morbid processes originate in the pharyngeal tonsil, attention should not be directed to the bursa alone, but an endeavor should be made to extirpate the tonsil as far as possible in its entirety.

7. That while a favorable prognosis cannot be safely predicted by treatment of the bursa alone, extirpation of the pharyngeal tonsil often affords a most favorable prospect in long-standing cases of post-nasal trouble.

DR. D. BRYSON DELAVAN then presented some

OBSERVATIONS UPON THE CONDITION KNOWN AS ADENOID HYPERTROPHY AT THE VAULT OF THE PHARYNX, AND THE METHODS USED FOR ITS REMOVAL.

A case was described in which with each acute attack of catarrhal trouble there would be enlargement of the adenoid tissue of the vault of the pharynx, forming a large tumor. When the attack passed away the hypertrophy disappeared. The author then referred to the methods of operation and the accidents which might occur. As the operation was attended with considerable pain he suggested the employment of anæsthesia. He had in a number of cases employed chloroform with satisfactory results, the object being to avoid the profuse mucoid secretion which is apt to follow the use of ether. Where chloroform is used the operation is performed with the patient on his back.

DR. F. H. HOOPER, of Boston, reported a case of a young lady who came to him with acute coryza and in whom he found a large-sized adenoid of the vault. After the attack subsided, the adenoid almost entirely disappeared. In order to avoid error, the post-nasal probe should be always used. With it conditions not apparent to the eye may be recognized. He had never seen serious hemorrhage follow operations for the removal of the tissue. In operating he first removes all that is possible with the post-nasal forceps and completes the removal with the finger-nail. He had never used chloroform. The amount of secretion after the use of chloroform varies very much in different cases.

DR. HARRISON ALLEN, of Philadelphia, advocated the use of the finger as a means of detecting these post-nasal affections. To examine the case thoroughly requires the use of an anæsthetic. In the treatment of adenoid hypertrophy, it is better to remove all the diseased tissue at one sitting under ether than to remove it in portions at different times.

DR. J. C. MULHALL held that for practical purposes the pathology of the pharyngeal tonsil was exactly the same as that of the faucial tonsil. In operating, he had applied cocaine thoroughly to the pharyngeal wall and soft palate to avoid the disagreeable sensation caused by the scraping of the forceps against the healthy pharyngeal wall, and had succeeded very well.

DR. F. I. KNIGHT related a case of acute hypertrophy of the faucial tonsil in which the surgeon performed tracheotomy preparatory to removing the tumor. When he came to operate he found that the growth had disappeared.

DR. WILLIAM E. CASSELBURG, of Chicago, referred to the importance of thoroughly eradicating these growths. In two cases in which portions of the mass had been left, the reflex symptoms, while greatly lessened, continued to recur. In two cases he had attempted to use the mirror during operation. To do this he pulled the soft palate forward by two rubber bands, passing through each nostril. In one case he succeeded to a certain extent, but in the other failed. This procedure, however, greatly facilitated the operation. In order to prevent the passage of blood into the larynx he was in the habit of bending the head forward at intervals in order to allow the escape of the blood.

DR. J. N. MACKENZIE, as a rule, operates without anæsthesia, removing a portion of the mass every day or every other day, continuing the operation for a week or ten days. He had seen very little pain from the operation. There is one point in regard to the nature of this so-called adenoid. He had examined a number of these growths under the microscope and they do not differ from papillomatous growths. There is also in addition a true adenoid growth; this is more difficult of removal than the former.

DR. F. H. HOOPER read a paper on

EXPERIMENTAL METHODS OF STUDYING THE ACTIONS OF THE INTRINSIC MUSCLES OF THE LARYNX.

He exhibited the apparatus which he had employed in studying the effect of stimulation upon the internal thyro-arytenoid, the lateral crico-arytenoid, and posterior crico-arytenoid muscles. The larynx of a dog is quickly excised, the mucous membrane removed, and the muscles subjected to electrical stimulation.

DR. F. I. KNIGHT then read a paper on

DYSPHONIA SPASTICA.

He briefly reported the four cases of this affection which he had seen in the last seven years. He regarded the condition as rare; there is probably a spasmodic action of the muscles of phonation, or respiration, or both, giving rise to a high-pitched, jerking voice. The prognosis is unfavorable. The object of the paper was to elicit reports of other cases.

DR. G. W. MAJOR had seen one case of aphonia spastica and two cases of dysphonia spastica. In none of the cases was benefit obtained by treatment.

DR. S. W. LANGMAID had reported one case in which treatment was unsuccessful. The patient, when he had to use his voice, prescribed for himself a little whiskey, and this answered temporarily. There seems to be no change in the voice since the affection first came on, fifteen years ago.

DR. DELAVAN said that in one case coming under his observation the patient was able to talk tolerably well after fortifying himself with a stimulant. This patient seemed to improve under local treatment to the larynx and vocal training, but the treatment could not be continued.

DR. C. E. BEAN, of St. Paul, had seen one case two years ago. Various methods of treatment had been employed without benefit. The voice is now the same as at the commencement.

Dr. Rufus P. Lincoln, of New York, read a paper on

RECURRENT LARYNGEAL GROWTH.

The patient had come under the care of the late Dr. Elsberg, twenty-four years ago. Dr. Elsberg first operated by the intro-laryngeal method, but could not remove the growth. Twenty-two years ago he did laryngotomy and removed the growth. The microscopical examination made at that time was unsatisfactory. There was no further trouble until a short time ago, when the growth recurred. Dr. Lincoln recently removed the tumor, which on microscopical examination proved to be a papilloma.

NEW YORK ACADEMY OF MEDICINE.

Section in Laryngology and Rhinology.

Stated Meeting, March 26, 1889.

C. C. Rice, M.D., Chairman.

Dr. T. W. Corwin, of Newark, N. J., presented a case of

HYPEROSTOSIS OF THE FACIAL BONES INVOLVING BONY OCCLUSION OF THE ANTERIOR NARES.

The literature of such bony occlusion is very scanty. Nevertheless, considerable attention has been paid to this subject recently in connection with cases reported by Drs. Potter, Hubbell, Pomeroy, Jarvis, C. M. Knight, Weir, and others. In all, about twenty cases have been collated. The majority of these have affected only the posterior nasal orifices.

The two cases reported by Dr. Jarvis are the only ones involving the anterior portions of the nasal fossæ. The author has carefully examined the literature of the subject by English-speaking observers and finds no other instances of anterior bony occlusion of this type.

Bony occlusions have been classified according to their origin as septal, turbinal, and palatal. The case here reported appears to be of turbinate origin. The lesion involves both sides symmetrically and has the following history:

Mary A. B., nativity United States, single. She was referred to Dr. Corwin for examination about February 1, 1889, by Dr. T. Y. Sutphen, Surgeon to the Eye and Eye Department of St. Michael's Hospital, Newark, N. J., who had treated her for acute catarrh of the left lachrymal duct, epiphora, etc., with relief. She presented a peculiar physiognomy. The frontal, malar and inferior maxillary bones were prominent, while the nose was but slightly developed and the central portion of the face had but little fulness. The mouth was constantly held slightly open. The features were symmetrical, excepting greater depth of the right eyeball. Examination of the anterior nares revealed complete occlusion upon the left side and nearly complete occlusion of the right side. The vestibules were normal. Slightly back of the vestibule of the left side, at the normal site of the inferior turbinate, the canal was closed by a wall springing from the outer side which curved inward and slightly backward and met the septum at an acute angle. Above, this led to a closed canal, along which a small probe was admitted to the pharnyx over a bony mass about one and three-quarters inches in length.

Upon the right side the canal was much larger and corresponded to the normal condition of the organ above the inferior turbinate. This canal was pervious and permitted difficult respiration with râles. The probe traced the obstruction to the same extent backward as upon the left side and gave it the same characters. The mouth is normal. There is no labial hypertrophy. The palatal arch is not unusually high. The upper teeth are mostly absent and are replaced by an artificial set. The inferior maxilla is very large in every direction and gives a massive appearance. It is about three-fourths of an inch in thickness. The velum palati approximates considerably to the post-laryngeal wall. On rhinoscopic examination, the post-nasal space is short from front to back. Only the upper half of the choanæ were seen by the mirror, and these were normal.

By palpation the palate bones presented no deviation, but the Eustachian tubes were large and completely ossified.

No other anomalies were found excepting retraction of the lower part of the sternum. The heart and lungs were normal. There is general chronic pharyngitis and naso-pharyngitis.

Sight normal. Hearing good. Olfaction unimpaired. Nasal respiration was but fractional and permitted upon the right side only. There was constant mouth breathing, frequent sneezing, and during sleep loud snoring. The voice is husky, with loss of the upper tones and of nasal resonance.

Excepting two sisters, the remainder of the family of nine members died during her childhood. No details can be obtained. Both sisters are healthy.

Patient knows of no illnesses in childhood, excepting measles and whooping-cough, but, as far as her memory extends, she has had difficulty in breathing through the nose, which has been progressive. Suckling is said to have been normal.

She has been much subject to colds, had pneumonia when thirteen years of age, and again a year later; some years afterward a severe bronchitis, and a third attack of pneumonia five years ago.

Treatment.—Partial and temporary relief was had from cocaine and Dobell's solution. About May 1st she was operated upon by Dr. Rice at his clinic. With the electro-trephine a channel of one-fourth inch diameter was made through the bone upon the right side. No irritation followed.

Dr. Knight said that his own observation has been in connection with obstruction in the posterior nares, which seems to be of a different character from this. His cases were due to thickening and distortion of the palatal bone. The treatment in one was by the electric trephine, and was successful as regards obstruction of respiration. There is one feature with regard to this case which struck him as remarkable, and that is the very slight impairment of function associated with this deformity, which we should naturally expect to be considerable in such cases. There was but little disturbance of any of the functions, except the sense of smell, in his cases. There was diminished hearing distance in the ear on the side of the affected nostril, but breathing was free enough through the other nostril.

Dr. S. T. Armstrong then read a paper on

LARYNGEAL VERTIGO.

(See p. 624.)

DR. L. C. GRAY said that he thought this the best paper upon the subject of laryngeal vertigo which he had ever had the pleasure of hearing or reading. The first case upon this side of the water was, he believed, reported by himself. This was some years ago, and he had not seen a case since. He did not know that there were so many cases upon record. But the term vertigo seemed to him a misnomer, for, as it is used by the American and English authors, it does not mean a loss of consciousness, but only a faintness, a dizziness, a swimming, a seeming loss of equilibrium, without any more than the faintest shadow of an obscuration of consciousness.

There are many important clinical reasons why we should keep the term vertigo distinct in its meaning from anything that implies a loss of consciousness. He had suggested the term epilepsy because the loss of consciousness in these cases is a genuine one, and because, in some patients, the loss of consciousness has been attended with tonic or clonic convulsions. His experience is, that when a person gets into the habit of losing consciousness, he is very apt to keep up the habit, and it is very difficult to break him of it, unless the loss of consciousness is a mere faint, as it occurs in some women, or unless it is associated with migraine, or some organic visceral disease. Whenever losses of consciousness are set up by disease of the central or peripheral nervous structure, whether that disease be organic or functional in its nature, that loss of consciousness is, so far as our present knowledge goes, of the nature of what we call by the generic name of epilepsy. It has not been established yet that the removal of an irritating cause will break up the epileptic habit, and it has not been proven that the removal of the irritating causes in cases of this kind will have any more effect. Temporary cessation of losses of consciousness does not, by any means, imply abolition of them, for they may be absent for months, or even years, and then return in full vigor. The word syncope has been suggested as a better term, but this is a great deal more than a syncope. It is a full loss of consciousness.

The case that he reported some years ago, that Dr. Armstrong referred to in his paper, still has occasional attacks, at least he did about a year ago when Dr. Gray last saw him.

DR. W. R. BIRDSALL had listened with a great deal of interest to the paper, and the main question in his mind, the one he would like to ask is, How are these cases related to the so-called laryngeal crises of locomotor ataxia? The cases of so-called larygeal vertigo are so few that he had his doubts where we ought to classify them.

A case came to mind that he observed several years ago, in which a patient affected with posterior spinal sclerosis related a distinct history of so-called laryngeal crises; but of such a violent type that he lost consciousness for a moment. He was seen by him at Manhattan Hospital, and was referred to the throat department, where they found a slight enlargement upon one of the vocal cords, which disappeared under treatment after a few weeks, and for a long period he had no more of these attacks. Then he came to him again, reporting that he had had an attack, and attempting to look at his larynx provoked one of his attacks, the only attack of so-called laryngeal vertigo he had ever seen; he never cared to repeat the experiment with him. The man apparently fainted, said that for a moment he lost consciousness. His face became very blue, there was evidently a good deal of laryngeal spasm at first. The description of these cases of laryngeal vertigo seemed to him very much like those of laryngeal crises or spasms which occur in locomotor ataxia.

Dr. Gray's way of looking at the subject is a plausible one. A certain number of these cases may possibly be epileptic, yet we know how readily loss of consciousness is produced. It seemed to him that the future may show that we have quite a variety of causes and conditions to account for such attacks.

DR. C. L. DANA said that the paper suggested to him much the same observations as those made by Dr. Birdsall, viz., the resemblance of these cases to the laryngeal crises of locomotor ataxia. He had recently had a patient with normal heart who suffered from such crises, during which there was great dyspnœa, rapid heart action, and disturbance of consciousness, and other evidence of involvement in the vagus and spinal accessory nerves. If these nerves were functionally and organically affected in locomotor ataxia, they might be also affected in other morbid conditions.

DR. S. T. ARMSTRONG said that, in regard to the remarks of Dr. Birdsall, Ferrial has made the same comparison of the laryngeal symptoms. The fact that in laryngeal vertigo nearly all the cases reported, except the one by Dr. Gray, have recovered, would show that they are simply temporary impairments of the function of the superior laryngeal nerve. Very possibly, it is the same fundamental principle at issue in each case. There is certainly, in the laryngeal crises, in tabes dorsalis, a much more powerful impression created, and symptoms of longer duration, than in laryngeal vertigo.

NEWS ITEMS.

Risks of an Outbreak of Yellow Fever this Summer.—Dr. Jerome Cochran, State Health Officer of Alabama, has just returned from an extensive trip through South Florida and Havana, made to investigate the yellow fever situation and obtain information as to the prospects of a fresh outbreak of the disease during the approaching summer. In an interview with the Associated Press as to the result of his trip, Dr. Cochran said:

"I am satisfied there has been no yellow fever in Jacksonville, Fla., since January last. A death from yellow fever was officially reported at Sanford, Fla., about the middle of April, but although six weeks have elapsed there have been no subsequent cases there. I visited the towns on the Manatee River, being specially interested in the Manatee country, because the people ship their farm and garden products to Mobile, and get their supplies from Mobile. I found no yellow fever in any of the Manatee towns. A suspicious case was reported at Palmetto a few weeks ago, but I saw the patient with the health officer of Florida, and we found that it was not yellow fever. The last case at Palmetto, which is one of the Manatee towns, occurred last November.

"I visited Havana and found very little yellow fever there, the average being fifteen or twenty cases a week, which is unusually light, considering that this is the epidemic season in Havana. Everywhere in South Florida and Cuba the health of the people was reported to be exceptionally good. The whole country is suffering from

drought, no rain having fallen in many weeks. The vegetable crops have been considerably damaged, and the people fear the orange crop will be cut off, but the health of the people is unusually good."

When asked what he thought about the prospects for an outbreak of fever this summer, Dr. Cochran said:

"I am entirely satisfied that there has been no yellow fever in Florida except the one solitary case reported at Sanford, since last January. There has been a very general feeling of apprehension among the health authorities of the Southern States that yellow fever might have lived through the mild winter in Florida, and might break out afresh during this summer. It is impossible to make any confident prediction, but I am inclined to believe that there will not be any fresh outbreak in Florida this year, unless there is a fresh importation of the disease."

Vital Statistics and the next Census.—Hon. Robert P. Porter, Superintendent of Census, has issued the following card to the medical profession:

"The various medical associations and the medical profession will be glad to learn that Dr. John S. Billings, Surgeon U. S. Army, has consented to take charge of the Report on the Mortality and Vital Statistics of the United States as returned by the Eleventh Census.

"As the United States has no system of registration of vital statistics, such as is relied upon by other civilized nations for the purpose of ascertaining the actual movement of population, our census affords the only opportunity of obtaining near an approximate estimate of the birth and death rates of much the larger part of the country, which is entirely unprovided with any satisfactory system of State and municipal registration. In view of this, the Census Office this year will issue to the medical profession throughout the country 'Physician's Registers' for the purpose of obtaining more accurate returns of deaths than it is possible for the enumerators to make. It is earnestly hoped that physicians in every part of the country will coöperate with the Census Office in this important work. The record should be kept from June 1, 1889, to May 31, 1890. Nearly 26,000 of these registration books were filled up and returned to the office in 1880, and nearly all of them used for statistical purposes. It is hoped that double this number will be obtained for the Eleventh Census.

"Physicians not receiving Registers can obtain them by sending their names and addresses to the Census Office, and, with the Register, an official envelope, which requires no stamp, will be provided for their return to Washington.

"If all medical and surgical practitioners throughout the country will lend their aid, the mortality and vital statistics of the Eleventh Census will be more comprehensive and complete than they have ever been. Every physician should take a personal pride in having this report as full and accurate as it is possible to make it.

"It is promised that all information obtained through this source shall be held strictly confidential."

Canned Meats.—*The American Grocer* referred some recently reported cases of supposed poisoning by canned meats, which occurred in Elizabeth, Plainfield, and Kearney, New Jersey, to Dr. W. K. Newton, M.D., Food Commissioner of the State, for investigation, and he reports that the Kearney and Elizabeth cases, 19 in all, were poisoned by putrefactive changes in corned beef which had not been canned, and the two Plainfield cases were caused by canned salmon which emitted a hissing sound when the knife cut through the tin, showing that its conrents were imperfectly preserved, and that fermentation had started.

The Popularity of Cremation.—Since the report of the Society for Cremation up to the first of last August, there have been 998 cremations in Italy, 287 in America, 554 in Gotha, 16 in England, 39 in Sweden, 7 in France, and 1 in Denmark, making a total of 1902.—*Revue Gén. de Clin. et de Thêr.*, May 2, 1889.

Corrigendum.

Page 585, second column, fifteenth line, *for* "oxygen" *read* "ozone."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 28 TO JUNE 3, 1889.

By direction of the Secretary of War, JOHN S. BILLINGS, *Major and Surgeon,* is authorized to make, in connection with his duties as Supervisor of Mortality and Vital Statistics of the Eleventh Census, such journeys as may be ordered by the Superintendent of the Census, provided that, in each case, the approval of the Surgeon-General shall be obtained; and provided further, that the journeys shall involve no charge against the fund for transportation of the Army.—Par. 12, *S. O. 122, A. G. O.*, May 27, 1889.

By direction of the Secretary of War, leave of absence for six months, on account of sickness, is granted to PAUL R. BROWN, *Captain and Assistant Surgeon.*——Par. 3, *S. O. 122, A. G. O.*, May 27, 1889.

The resignation of GEORGE F. WILSON, *Captain and Assistant Surgeon,* was accepted by the President, and took effect May 31, 1889.

FISHER, WALTER W. R., *Captain and Assistant Surgeon.*—The leave of absence for one month, granted by S. O. No. 30, *c. s.*, Department of California, is extended fifteen days.—Par. 3, *S. O. 37, Headquarters Division of the Pacific, San Francisco, California,* May 22, 1889.

By direction of the Acting Secretary of War, JAMES D. GLENNAN, *First Lieutenant and Assistant Surgeon,* is relieved from duty at Willett's Point, New York, to take effect June 1, 1889, and will proceed to Fort Riley, Kansas.—Par. 5, *S. O. 121, A. G. O*, May 5, 1889.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING MAY 25, 1889.

HUTTON, W. H. H., *Surgeon.*—To proceed to New Orleans, Louisiana, and inspect unserviceable property, May 25, 1889.

PURVIANCE, GEORGE, *Surgeon.*—Detailed as Chairman of the Board of Examiners, May 22, 1889.

AUSTIN, H. W., *Surgeon.*—Detailed as a member of the Board of Examiners, May 22, 1889.

GODFREY JOHN, *Surgeon.*—Detailed as Recorder of the Board of Examiners, May 22, 1889.

GUITÉRAS, JOHN, *Passed Assistant Surgeon.*—Resignation accepted, by direction of the President, as tendered, to take effect April 30, 1889, May 11, 1889.

ARMSTRONG, S T., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, May 11, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ARTHRECTOMY OF THE KNEE-JOINT.

A Clinical Lecture
delivered at the German Hospital, Philadelphia.

BY JOHN B. DEAVER, M.D.,
VISITING SURGEON TO THE HOSPITAL.

GENTLEMEN: The patient I show you to-day, you will remember as the one I had the pleasure of presenting to you some time since, when I pronounced it a case of hysterical trouble of the knee-joint. In making this statement I was influenced somewhat by the fact that the patient had been treated for several weeks in one of our largest hospitals, being under the care of one of our best known surgeons for this supposed trouble. Since the day I last presented her in this clinic, having had an opportunity of seeing her at different times and in different positions, I have been struck by the manner in which she gets around, believing that the pain of which she complains, and which she refers to the knee, not to be feigned, but actual, and caused by some organic trouble of the joint.

A few days ago, upon making a more critical examination of the joint by palpation, manipulation, and measurements, I satisfied myself that there was intra-articular disease. I based my opinion upon the following points: first, the contour of the affected joint, particularly above and below and upon either side of the tendo-patella, when compared with that of the opposite limb, will be seen to present a slight difference in favor of this joint. The two lower of these points, those upon either side of the tendo-patella, and which I now demonstrate to you, should not be convex prominences, as they are here, but depressions, as upon the opposite limb, the latter being the normal condition of the parts. Palpation of these points elicits a sense of elasticity, due perhaps to the presence of pus; but I think not, as there would be more disorganization of the joint in addition to the constitutional manifestation of the presence of this fluid. I believe these prominences to be due to a thickened synovial membrane, probably the site of granulation tissue, and to the relaxation of the capsular ligament and the fibrous expansion of the quadratus extensor femoris, which surrounds the joint, consequent upon the intra-articular pressure. Again, as these points are rendered more prominent by strongly flexing the knee, and are not made to disappear by strongly extending the limb, also as the skin and superficial fascia move freely over them, I am convinced that they are intra-articular. By next directing our attention to the contour of the part of the joint immediately above the patella over the site of the quadratus femoris bursa, we find it more prominent than that of the same part of the corresponding limb.

I will now subject the joint to forcible flexion, which you will notice causes the patient considerable pain. In executing these manipulations I meet with a resistance, which to my mind is greater than would be occasioned by simply the straining efforts of the patient, and due, therefore, to the presence of intra-articular irritation. I will now attempt to elicit lateral motion by grasping the thigh strongly with one hand and the leg with the other hand and move them alternately from side to side; this manipulation proves to be negative, showing that the ligaments of the joint, especially the lateral, are but little, if any, affected. By placing the limb in the extended position and grasping the patella, I am able to move it more freely than I am the patella of the corresponding joint, it communicating to my sense of touch a feeling as though it were resting upon a cushion. With the limb in the same position, by making pressure upon the patella, also by grasping the leg and forcing the head of the tibia against the condyloid extremity of the femur, in both instances crowding, as it were, the parietal and the visceral layers of the synovial membrane, I succeed in provoking a very much greater amount of pain than I am able to do by subjecting the opposing limb to the same manipulation. Again, by comparing the measurements of the affected joint, particularly at the points to which I have referred, with those of the joint of the corresponding side, the difference is strongly in favor of the affected side. My diagnosis, therefore, is chronic inflammation of the synovial membrane, particularly of that part lining the anterior part of the joint. I do not think there is any involvement of the articular cartilages; but this we will demonstrate after having opened the joint.

The patient has been, both here and in the hospital where she was before being admitted to this, subjected to the best possible treatment, both constitutional and local, for her trouble. The constitutional treatment consisted of good nutritious diet and the administration of tonics, chiefly iron, quinine, arsenic, strychnia, and cod-liver oil; and the local treatment, of counter-irritation over the joint in the shape of the tincture of iodine, of small blisters, of the application of an ointment composed of equal parts each of mercury and belladonna, which I have upon previous occasions recommended to you most highly in the chronic inflammations of the tissues of the joints. Her limb has also had the benefit of absolute rest, it having been incased in a plaster-of-Paris dressing for several weeks consecutively. You will see, therefore, that this patient has been given the benefit of every doubt, the treatment to which she has been subjected extending over several weeks, and, notwithstanding this, her trouble is increasing. As we have demonstrated actual physical trouble in this joint, I feel I am justified in exploring the joint by opening it upon the inside of the tendo-patella over one of the two most prominent points to which I have referred, when I can examine it,

both by inspection and by my finger, thus enabling me to determine whether to proceed further or not.

In the event that I find the disease limited to the synovial membrane, with perhaps invasion of the cartilages, I will perform the operation known as arthrectomy, and which, to my knowledge, has been done but once in Philadelphia, and that by Professor John Ashhurst, at the Children's Hospital, in October last. Arthrectomy means removal of the soft tissues of the joint without disturbing the bones. When we make a section from either the lower end of the femur or the head of the tibia, or both, we do an excision and not an arthrectomy.

Arthrectomy was first performed by Wright, of Manchester, in 1881. The operation is done more by English surgeons than any other, yet both the German and French surgeons do it. The advantages claimed for this operation over excision are, that the length of the limb is not interfered with, there being no risk of consecutive shortening; also, no danger of axial deformity—by that I mean the leg turning in while the thigh rolls out.

The limb having been carefully prepared for the operation, we will, of course, adhere most strictly to antisepsis, being extremely careful not to overlook a single point in carrying out this treatment, as I firmly believe that operations of this character are only justifiable when done under the most strict antiseptic precautions. I will first apply this rubber tube, which has been lying in the sublimate solution for some time, around the patient's thigh, a short distance above the knee; the object of this is to render the operation bloodless, which is very important in an operation of this kind, as it will enable me to make to the best possible advantage the dissection for the removal of the entire synovial membrane of the knee, or a part of it (in the event we find the disease confined simply to it). I will first explore the joint over the inner of the two prominences situated on either side of the patellar tendon, by carrying an incision through the soft parts. I am now able to expose the synovial membrane, which I find is discolored, thickened, and covered by granulation; I will next introduce my finger into the joint through this opening, when I am able to satisfy myself that the synovial membrane lining the anterior part of the joint is likewise diseased. I will, therefore, proceed to open the entire joint by carrying an incision from a point posterior to the middle of the internal condyle over the front of the joint, and between the lower end of the patella and the tuberosity of the tibia, to a point behind and below the middle of the external condyle, this incision going into the joint and passing through the one first made for the purpose of exploration. I will next dissect and reflect upward the large flap, including the skin, superficial fascia, the expanded tendon of the quadriceps extensor, the capsular ligament, the patella, and the parietal layer of the synovial membrane lining the joint upon this aspect, when I am able to demonstrate to you the appearance of the diseased synovial membrane. To expose the synovial lining of the bursa beneath the tendon of the quadriceps extensor femoris muscle, I will carry two incisions upward upon either side of the patella through the fibrous capsule of the joint and the capsular ligament, when I find this portion of the synovial membrane more diseased than that of any other.

It remains for me to examine the synovial membrane lining the articular extremities of the bones, and the back of the joint; to expose this portion of the membrane, I will place the limb in the position of strong flexion, when you will see that the synovial membrane covering the articular extremities of the bone, and lining the back part of the cavity of the joint, presents an entirely different appearance from that which I have already exposed, and to which I have called your attention. This portion of the membrane is perfectly normal, therefore we shall leave it alone, and go back and confine the remaining part of our manipulation to the removal of the membrane diseased; this dissection I will now make, using a pair of dissecting forceps and a knife, substituting the latter occasionally by scissors curved on the back. The visceral layer of the synovial membrane along the lateral borders of the patella and the upper edge of the condyles of the femur, presenting the same appearance as that which I have removed, calls also for removal; this I will do with the curette in this manner: All of the diseased tissue having been removed, it remains for me, after the removal of the rubber tube, to arrest all bleeding, thoroughly drain the joint, close the wound, dress the limb, and place it in a fixed position.

The rubber tube having been removed, you will notice that there is some bleeding, this we control by tying the bleeding vessels with catgut ligatures. As the question of drainage is so important, I will place a large rubber tube through the joint and in front; I will also introduce two tubes, one upon either side, into the bursa patella; I will now close the joint by stitching, first the tendo-patella, and secondly the capsular ligament and the fibrous expansion of the quadriceps extensor, with interrupted catgut sutures; I will close the wound in the soft parts with interrupted silver wire sutures.

Now notice, please, that after having closed the wound thoroughly, I am able to irrigate the joint perfectly through these tubes, and you will also notice that the fluid comes out perfectly clear, showing that there is no bleeding going on within the joint. I will now dress the wound with the ordinary antiseptic dressings, and apply a long posterior splint to the limb. It will be important for us to keep the limb well supported posteriorly for some time, for the purpose of preventing any tendency to consecutive flexion, one of the objections urged against this operation by French surgeons, but this I may say occurs sometimes after excision, if we are not careful to support the limb until some time has elapsed after the union is apparently perfect.

ORIGINAL ARTICLES.

CAN PNEUMONIA BE CUT SHORT BY ANTIPYRIN?

By H. G. BEYER, M.D., Ph.D., M.R.C.S. (Lond.),
P. A. SURGEON U. S. NAVY.

An article upon this subject appeared in the *Lancet* of April 13, written by Mr. E. H. Counsell, and was answered by Mr. R. Sisley, M.B., M.R.C.P., through the columns of the same journal April 27. It attracted my attention, as I had previously been much interested in antipyrin, and last year had two patients ill with pneumonia which were treated with this drug, with what I considered excellent results. I have been waiting since for larger opportunities

and more extended experience before calling attention to these cases. The question, however, having now been brought up in the *Lancet*, and in view of the importance of the subject, I have concluded to add whatever evidence I have been able to draw from this limited experience.

The two cases of pneumonia came under my observation and care while serving as senior assistant surgeon on board the ill-fated U. S. S. "Trenton" during her passage from New York to Porto Grande, Cape de Verde Islands, in the month of February, 1888. The first case, indeed, seemed to me of so remarkable a character, that I copied a few rough notes on it from the ship's medical journal into my private note-book, which, however, I am sorry to say, I failed to do of the second case, not less noteworthy. The history of this case is briefly as follows:

CASE I.—John D., aged twenty-two years and two months, a native of Holland, always been well and giving a good family history, was admitted to the sick-list on the morning of February 2, 1888. (The "Trenton" left New York harbor the day before, February 1st.) He was taken with a severe rigor early that morning, and was feeling very ill and much depressed in spirits. Physical examination at the time revealed nothing beyond the presence, over the lower lobe of the right lung, of a few moist râles with some pleuritic friction. The temperature was 100.4° F., pulse 96, full and strong; in the evening of the same day the temperature went up to 103°; pulse was 120 per minute; there was great restlessness, headache, and complete anorexia.

February 3. Physical examination revealcd the presence of distinct and unmistakable crepitant râles over entire lower lobe of right lung; temperature 102.2° in the morning, 102.5° in the evening; respirations 30 per minute, shallow in character; slight hacking cough, with rusty-colored sputa; pulse 120, hard and strong in character, tongue thickly coated with brownish-white fur, somewhat fissured, dry, and unsteady; wears an oil-silk jacket fitted to his chest.

4th. Temperature 101.8° in the morning; 102.1° in the evening; principal diet milk; received no solid food.

5th, or the fourth day after admission, crepitant râles were discovered on the left side of the chest, especially abundant over the posterior aspect below the angle of the scapula; temperature 103.8° in the morning, 104.2° in the evening; has delirium with hallucinations, and a regular watch is being kept over him constantly; tried to leave his cot several times; was given ten grains of quinia sulphate in some whiskey; pulse is very frequent, weak, and small.

6th. Temperature 101.5°. Patient is very much worse this morning; pulse very frequent and small, with difficulty felt at the wrist; apparently in a condition of arterial ischæmia and corresponding venous congestion, owing to the sudden appearance of double pneumonia and consequent obstruction to the pulmonary circulation; delirium of the low muttering type, with hallucinations kept up more or less all day long. In the evening temperature was 104°; pulse very frequent, feeble, and fluttering; heart's action irregular and intermittent; picking about his clothes constantly; the face presents a deeply congested, lips a bluish, look. His general condition on that evening was so critical that a collapse seemed imminent. A hypodermatic injection of one-third grain of morphine was administered on account of the great restlessness and delirium present; half an hour later no change in the condition. At 10.30 P.M., or about half an hour after giving the morphine, a full dose of thirty grains of antipyrin was administered by the mouth. Twenty minutes later he became quieter, and one hour after taking the antipyrin he slept quietly, and continued so all the night for the first time since the beginning of his illness, at the same time perspiring so profusely that all his bed-clothes, mattress, and cot were found to be wet the next morning and had to be changed. He awoke feeling much better, and for the first time since his admission seemed to take nourishment with relish.

7th. His temperature in the morning was 100°; pulse 92 per minute, stronger than on the previous evening; heart's action regular; crepitant râles still marked toward the end of each inspiratory act over areas indicated above, but especially over the left side of the chest. On the evening of the same day his temperature was but 0.5° above what it had been in the morning; appears brighter, having felt comfortable all day; taken and enjoyed every regular ration of milk which was offered him.

On the following morning he was found to be still better; his sleep had been undisturbed and refreshing without the use of anodynes; has received no medicine of any kind since the antipyrin was administered; temperature 99.5°; took some solid food to-day; temperature in the evening 99°. From this time forward the temperature never rose again above the normal. This patient began to leave his cot on February 10th, or on the ninth day of the disease, and convalescence was rapid, passing on uninterruptedly to complete recovery.

CASE II., so far as I am able to recollect, was quite similar to the first, excepting that it was much more mild in its onset, and the diagnosis could not be established until the fourth day of the disease. This having been done to the satisfaction of Medical Inspector Adrian Hudson and Assistant-Surgeon S. S. White, one-third of a grain of morphine was administered hypodermatically, followed afterward by thirty grains of antipyrin by the mouth, just as had been done in the first case. The result was practically the same, though, perhaps, not quite so striking as in the previous case, but recovery took place without further medication.

Whatever effect was produced by medication in the above two cases, we are bound to attribute to the combined influence of the morphine and antipyrin rather than to the latter drug alone. But the question is, Have we here sufficient evidence to show that any effect was produced by the drugs which were administered other than might have

occurred without the administration of either of them? Are we not rather led to expect, even without any special treatment, what occurred, for instance, in the first case, namely, the crisis on the fifth day, with profuse perspiration, as marking the beginning of convalescence in a typical case of pneumonia? Nor is the second case, although the crisis occurred on the fourth day, at all convincing in this respect.

While, then, we must admit all this, after carefully studying the two cases before us we confess frankly that a very strong belief has crept in upon us that, after all, the results produced in the above-mentioned cases were the immediate and direct effects of the drugs administered, urging us on very strongly to try the same things again under similar circumstances. Science, it is to be hoped, may help us out sometime in therapeutics, but that time seems to be as yet far off; we cannot afford to wait for it to come, and meanwhile stop altogether administering drugs simply because we are not in a position to do it on strictly scientific principles.

But let us try and study the conduct of the antipyrin administered in the above-mentioned cases a little more minutely, and we may, perhaps, succeed in learning something, after all, from its possible mode of action. In view of the fact that Case I. had passed into one of double pneumonia at the time of the administration of the antipyrin, the obstruction which was thereby offered to the pulmonary circulation probably had resulted in great weakness and partial enlargement of the right ventricle, with general engorgement of the venous side of the systemic circulation as well as of the portal circulation. Owing to this condition of things, the morphine injected hypodermatically and not producing the usual effects within half an hour, was probably not absorbed at all or very slowly, and did not get into the systemic circulation in sufficient quantity to produce the desired effect.

From the limited number of experiments which I made with antipyrin on the circulation, published in *The American Journal of the Medical Sciences*, 1885, I came to the conclusion that antipyrin is a heart-tonic, dilates the bloodvessels and at the same time produces no appreciably injurious influence on the blood. In the natural course of events the antipyrin, given by the stomach, probably reached the right ventricle first, having to pass through the lungs before arriving in the left ventricle and passing into the general circulation. If, now, we may assume that a tonic effect on the heart was produced by antipyrin in this case, and during its passage through the lungs a further dilatation of the pulmonary vessels, whereby the great venous congestion was relieved and the circulation equalized, we would have at least a physical explanation, not only accounting for the rapid subsequent absorption of the morphine, but also for the general amelioration produced in our patient, as set forth in the history of the case.

With regard to the experiments with antipyrin referred to, I, of course, do not wish to be understood as wanting to apply directly to man what was found to be true of animals only. Yet it must be admitted that our first, and perhaps most scientific indications for the use of drugs in man are derived from pharmacological experiments on the lower animals. In the opinion of the writer antipyrin would be more especially indicated during that stage of the pneumonic process during which we have great interference in the circulation, on account of its possessing the property of not only stimulating the heart but also of dilating the vessels at the same time.

Most of our ordinary heart-tonics, while they stimulate the heart's action, cause a simultaneous vascular contraction, and hence do not meet the exact requirements of the case.

Whatever effect was produced on the pneumonic process by the antipyrin in these two cases must, of course, be mere conjecture; if the pneumococcus is influenced unfavorably by it, laboratory experiments might suffice to show, but extended clinical experience would be necessary actually to prove it.

In conclusion, therefore, I would say, while these two cases prove nothing, they are, to say the least extremely suggestive.

LESIONS OF THE SACRAL AND LUMBAR PLEXUSES.

With Remarks on their Importance, and their Diagnosis, General and Localizing.[1]

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THE purpose of the present paper is to show the importance and comparative frequency of lesions of the limb plexuses, to give some suggestions or rules for their recognition, and briefly to refer to questions connected with their surgical treatment. Gross lesions, not degenerations, will be considered; and so-called functional affections, such as neuralgias proper, will be treated of only as necessitated by a discussion of diagnosis. Some of the lesions of the limb plexuses or their cords or branches are common to all, as, for example, neuritis, neuromata, non-neural growths implicating nerves, aneurisms, abscesses, gunshot and other injuries. Other gross lesions have a special character owing to location: as rectal, ovarian or uterine lesions involving the

[1] Read before the Neurological Section of the New York Academy of Medicine, May 10, 1889.

sacral; vertebral caries and certain abscesses the lumbar, and dislocations of the shoulder or fracture of the clavicle, the brachial plexus. It will be impossible in the space to which this communication must be restricted to dwell at length upon fine points of localization; but specifically in a few instances and incidentally in others, localizing facts and rules will be given. Complicated as is the sensory and motor arrangement and distribution of these plexuses, thanks to the careful work of Mitchell, Paterson, Goodsir, Ferrier, Bert and Marcacci, Forgue and Lanagrace, Walsh, Putnam, Herringham, Ross, Thorburn, and a few others, we are now able to approach the subject of the localization of lesions of even particular cords of these plexuses and their nerve roots with increasing confidence.

LESIONS OF THE SACRAL PLEXUS.

The sacral plexus formed by the lumbo-sacral cord, the anterior divisions of the three superior sacral nerves, and a part of the fourth, rests largely upon the surface of the pyriformis muscle in the true pelvis; and a single glance shows how thoroughly, in accordance with its great function, it is protected both by its position and coverings.

It may be well to recall one or two well-known points in pelvic neural anatomy which may have some localizing value. The superior gluteal nerve, for instance, arises from the back part of the lumbo-sacral cord, and is the only nerve that springs from that important link between the lumbar and sacral plexuses; so that a lesion strictly limited to this cord would give sensory and motor impairment in the distribution of this nerve, as well as the symptoms resulting from interference with the functions of the lumbo-sacral cord itself. The muscular distribution of the superior gluteal is to the gluteus minimus and medius and tensor vagina femoris. The lowest of the intra-pelvic nerves are not connected with the sacral plexus at all. These are the branches of the fourth and fifth sacral nerve roots to the levator ani, sphincter ani, coccyx, and skin of these parts. A lesion may be so isolated as to affect only these extra-plexal pelvic nerves, or the plexus may occasionally be affected and these nerves escape.

The neurologist should know the landmarks for examining and palpating the sacral plexus and intra-pelvic nerves by the rectum, the chief of which are the great and lesser sacro-sciatic ligaments, the spine of the ischium, and the pyriformis muscle.

A few general statements with reference to lesions of the sacral plexus may serve to present the subject more clearly and comprehensively. A lesion of the sacral plexus in its entirety will strongly counterfeit a unilateral affection of the lumbo-sacral portion of the spinal cord from which the nerves of the plexus arise, or of the lower part of the cauda equina within the spinal canal. Bilateral lesions of the sacral plexuses so closely counterfeit lesions of the lumbo-sacral region of the spinal cord, or of the cauda equina, as to make the diagnosis sometimes exceedingly difficult; and in some cases of this kind the differentiation can be best made by proper local manipulation and examination by the rectum or vagina, or both. Lesions of single or several cords of this plexus, or of its nerve branches within the pelvic cavity, may counterfeit neuralgias of the nerves in either their intra- or extra-pelvic distribution; sciatica is a frequent diagnosis in these cases. Lesions of the sacral plexus or intra-pelvic nerves are not infrequently supposed to be disease of the uterus or ovaries, or their appendages and surroundings; and, on the other hand, disease and enlargements of these parts often involve the plexus.

Beside growths or other diseases of the uterus, ovaries, and their connected parts, the gross lesions which may affect the sacral plexus, or in which it may be implicated indirectly, are neuritis or nerve degeneration from pressure or bruising during labor, rectal disease, pelvic cellulitis and abscesses, pelvic or intra-pelvic tumors, particularly neuromata, osteomata, and osteo-sarcomata, gunshot wounds, and neuritis, unilateral or bilateral, of unknown cause.

Psoas abscess may follow such a course as to involve the sacral plexus, and, before taking up the special lesions of the plexus, I may dismiss this point with a few words. Psoas abscess tends often to follow an irregular or multiple course. The pus may pass down the sacrum; it may even leave the pelvis by the sciatic notch. Brodie[1] records a case in which the abscess descended from the loins and presented as a tumor in the groin. Suddenly the tumor disappeared, but later a large collection of matter was found in the posterior part of the limb, behind the little trochanter of the femur. Post-mortem examination showed that the abscess had taken the course of the common tendon of the psoas magnus and iliacus internus muscles to their insertion into the bone, afterward extending further backward below the inferior edge of the quadratus femoris. A number of cases have been recorded in which this complication has occurred. Thompson[2] has, for example, reported a case of psoas abscess which was supposed for months to be one of sciatica. Pain, terrific but remittent, followed the course of the great sciatic nerve of the right leg. It sometimes extended to the ankle and even to the dorsum of the foot and great toe. Tenderness on pressure, hyperæsthesia in some parts and anæsthesia in others were among the symptoms.

One form of puerperal paralysis is probably the

[1] Diseases of the Joints.

[2] Lecture on Sciatica, in a Series of American Lectures, edited by E. C. Seguin, M.D.

result of pressure upon the sacral plexus, or upon the lumbo-sacral cord where it passes over the brim of the pelvis; more probably the former, as the lumbo-sacral cord is particularly well protected in its descent. Few such cases, however, have been recorded. Imbert-Gourbèyre,[1] in his monograph on *Puerperal Paralyses*, speaks of several cases in which, from prolonged labor, and probably also from imprudent obstetrical manipulations, paralysis resulted. One of these cases, cited from Rademacher, was an incomplete and painful paraplegia coming on at the end of a long and difficult labor, and cured in eight days chiefly by friction. Another patient, thirty-six years old, during her third labor was paralyzed in both extremities, and recovered in a few months. Salvat is cited as reporting the case of a woman treated by him for vesico-vaginal fissure, with paraplegia, produced by the long stay of the head of the fœtus in the inferior strait. Another patient, thirty-two years old, during her fourth labor, which was prolonged and the delivery by forceps, suffered great pain in the loins, accompanied by feebleness and swelling of the legs. The feebleness increased to paraplegia, and she had lancinating pain, paræsthesia, and cramps in the limbs. These cases are imperfectly reported, and, as the neural symptoms were bilateral, it is possible that some of them may have been spinal. It is, however, more likely that they were due to direct traumatism of the lumbo-sacral plexuses. Dr. Dercum, of Philadelphia, has reported to me, verbally, some particulars about a case of unilateral paralysis, atrophy, and anæsthesia of the leg following delivery, and apparently due to pressure on the sacral plexus in the floor of the pelvis.

Dr. Howard A. Kelly, Associate Professor of Obstetrics in the University of Pennsylvania, has kindly furnished me with brief notes of two interesting cases supposed for a long time to have been purely gynecological. The first case, Mrs. X., had passed through a difficult instrumental confinement some twelve years before coming under observation. She visited many prominent gynecologists, and underwent a number of operations, the last being the removal of two large tubes and the ovaries. She was relieved of menstrual exacerbations, but still suffered great pain in the pelvis, for which she was receiving galvanism, message, and anti-lithic remedies. Her suffering continued unabated; and Prof. H. C. Wood, in whose charge she was, called Dr. Kelly in consultation. A careful examination showed that the uterus and its surroundings were perfectly free from disease. On making a careful rectal examination, however, outlining the sacro-sciatic ligament and pyriform muscle, and carefully palpating the roots of the great sciatic nerve, upon touching one cord she gave a sudden scream, at the same time doubling up her leg and jerking her body in bed. Here, directly over the roots of the left sciatic nerve—the left sacral plexus—was the only diseased area which could be detected in the pelvis. All subsequent treatment was directed to this condition.

In a second case the patient had constant pelvic pain, which she described more as a soreness, and located "back of her womb." She had been for several years since the birth of her last child under the care of gynecologists, who had not been able to give her any relief whatever. It was found by exploration that the only point of tenderness in the pelvis was at the roots of the sciatic nerve, and here she at once located all her pain, when the doctor introduced his finger into the rectum and made pressure on the nerve trunks. The case was one of neuritis. As Dr. Kelly remarks in the communication sending the notes of these cases, they teach the value of exploring the pelvis outside of the uterus and its annexes.

In one interesting case of railroad injury, supposed to be an example of railroad brain and spine, careful examination showed exquisite tenderness over both sacral plexuses, but particularly marked on one side. The plexuses were palpated through the rectum. This patient suffered great pain and tenderness in the lumbar and sacral and sacro-ischiatic regions and also complained of general weakness and pains in the lower extremities. She was pregnant at the time the accident occurred, and suffered greatly later at the time of her labor, the child dying during parturition. She had other cerebral and general nervous symptoms.

In rare cases of extensive disease of the rectum or of immense fecal accumulations, the sacral plexus or some of the intra-pelvic nerves may be compressed or irritated, or both, and thus give rise to great suffering. Pelvic cellulitis may occur even in the male, and also give symptoms of irritation and of compression of the sacral plexus. Skjeldrup[1] describes such a case in a man fifty years old, in which examination per rectum showed a hard tumor. Muir, quoted by Skjeldrup, has published a similar case. Mitchell[2] speaks of a case in which the patient suffered from numbness in the left foot and leg, followed by increasing loss of power to flex the foot. The peroneal muscles were found to have lost electrical response. On vaginal examination she was discovered to have a large growth behind and to the left of the womb. Innumerable cases of pelvic cellulitis in the female are of course on record, but in few have the sensory, motor, and other neural

[1] Mém. de l'Academie roy., vol. xxv.

[1] Tidsskrift f. Prakt. Med., quoted in Medical Register, vol. iv., September 15, 1888.

[2] Injuries of Nerves.

symptoms been reported with sufficient care to allow of anything but a general diagnosis. If gynecologists paid strict attention to the exact distribution of the pain in their cases of pelvic inflammation, abscess and growths, they would have a surer hold on early diagnosis. The character of the pain in these cases usually receives fuller attention than its distribution as would be naturally expected.

It is well known that neuromata occur somewhat frequently in connection with the cords or branches of the brachial plexus. Doubtless these growths now and then are present also in both the sacral and lumbar plexuses, and are overlooked. I have not been able to find reports of such cases, but it is probable that occasional rare forms of intractable sciatica, or other forms of neuralgia of the lower extremity in the distribution of some of the sacral nerves, are due to growths of this character.

Putnam[1] has reported an instructive case of sarcoma involving the intra-pelvic nerves, notes of the autopsy being given. The first and a recurring symptom was pain in the middle toe of the left foot. In six months the sacral region became extremely painful, and also the posterior and outer surface of the thigh, and the outer side of the leg and foot. The pain was accompanied by some paræsthesia, especially in the outer half of the left foot.

The right leg was attacked with severe pain, confined to the posterior and outer side of the thigh, nearly six months after the left. The pain abated, and renewed itself in the left leg. Walking became difficult. The muscular weakness affected not only the muscles of the sciatic distribution, but also the quadriceps extensor, and the psoas and iliacus. Slight tactile insensibility was present in the vicinity of the anus. Applications of galvanism were very painful. Knee-jerk was absent on both sides. No tumor could be discovered by rectal examination.

I have seen several cases of intra-pelvic or pelvic growths, causing pressure upon the sacral plexus or involving some of its cords or branches. In one an autopsy confirmed the diagnosis.[2] A man who had been treated for many months for sciatica, had pain chiefly down the back of the thigh, in, but not strictly confined to, the line of the sciatic nerve. The pain was altogether in the right leg; it was increased by pressure and movement, and he could not bring the foot firmly on the floor. A marked symptom was swelling of the leg, the left thigh measuring thirteen and a quarter inches; middle of leg fifteen inches; ankle eight inches; the right thigh twenty-one and a half inches; middle of leg fourteen inches; ankle nine and a half inches. The thigh presented a solid œdematous condition, with distinct pitting on pressure. A tendency to outward rotation was present. Pressure at the sciatic notch seemed to produce more pain than pressure elsewhere in the leg. Some of the abdominal muscles of the right side were cramped and tense, although those of the left side were relaxed. Movement of the limb caused pain. Examination by the rectum showed distinctly a solid resisting growth on the right side. In another case the diagnosis of sciatica had been made and persisted in for many months, but examination by the rectum revealed a tumor. The nerves of nearly the entire sacral distribution were involved, but very irregularly, in pain, anæsthesia, paralysis, and atrophy. In still another case, at the Philadelphia Hospital, the patient was also treated for a long time for sciatica, but close examination demonstrated disease of the acetabulum, and after death a large osteo-sarcomatous growth was found. Miles,[1] of Baltimore, has contributed a case of malignant disease of the pelvis which was supposed to be one of sciatica. The patient developed a malignant tumor about the hip, of which he died. Examination both externally and by the rectum revealed nothing. The one great symptom was pain in the sciatic distribution. One important practical point is that all of these cases had been treated for other affections, chiefly for sciatica or spinal disease.

A few interesting gunshot wounds of the sacral plexus have been reported, and many other cases equally interesting of rectal and pelvic gunshot injuries in which the nerve cords escaped. Habgood[2] has recently reported a bullet wound of the pelvis involving the rectum, in which, under antiseptic treatment, the patient rapidly recovered. This patient suffered great pain, not closely described as to its particular distribution. The bullet passed inward through the great sacro-sciatic notch. During the American war 103 cases of gunshot wounds are reported, of which 44, or 42.7 per cent., proved fatal. One case of gunshot wound of the sacral plexus is reported in vol. ii., *Medical and Surgical History of the War of the Rebellion*, p. 341. The patient, a private, aged twenty-three years, was wounded at Gettysburg. He was treated on the field until August 21st, and then admitted to Camp Letterman Hospital. Acting Assistant Surgeon H. H. Sutton reported that a ball from a Sharp's carbine entered the left side of the sacrum at the third segment, passed into the pelvis and there lodged. The ball in its passage injured the sacral plexus, consequently

[1] Journ. Nerv. and Ment. Dis., vol. xiv., Sept. and Oct. 1887, p. 601.

[2] Three of these cases were briefly referred to at the meeting of the American Neurological Association, 1887.

[1] Journ. Nerv. and Ment. Dis., vol. xiv., Sept. and Oct. 1887, p. 666.

[2] Manitoba, Northwest and British Columbia Lancet, 1887–8. Also Brit. Med. Journ.

the leg of the corresponding side became paralyzed, but the natural feeling and movements of the limb were gradually returning when the patient was admitted. Unfortunately, a study of this case as to sensation and motion was not made or not recorded.

On general principles I can see no reason why neuritis of the sacral plexus, either spontaneous, rheumatic, infectious, or of unknown cause, may not occur with moderate frequency. Neuritis of the brachial plexus, either in its entirety or in some of its subdivisions, is a well-known and often investigated disease; but the sacral and lumbar plexuses seem to have rarely attracted the attention of physicians with the idea that they were the subjects of neuritis. The surroundings of the sacral plexus are such as to render it more liable than the brachial to inflammation, either by contiguity or by causes acting through its environment. It is, perhaps, less liable to rheumatic inflammation. In every obscure case of unilateral, or even bilateral, pain in the extremities, whether associated with anæsthesia and paræsthesia or not, the sacral plexuses should be carefully examined by palpation through the rectum. A word of caution is perhaps here necessary. In some individuals, particularly females, of a highly nervous temperament, it is possible that pressure upon the comparatively exposed intra-pelvic nerves, reached by the finger in the rectum, may give rise to pain, which by psychical influence will be exaggerated so as to mislead the physician into supposing that the nerves are in a state of inflammation when such is not the case.

The following cases described by Dr. L. C. Gray[1] are cases in point where a rectal examination might have been of service for diagnosis.

The first patient felt tingling pains through both buttocks, the perineum, the scrotum, the tip of the penis, and down the back of both thighs, with some smarting in urination. As the result of the Turkish and Russian baths these symptoms were violently augmented and high fever ensued. Sexual desire was entirely lost, as were also the skin and cremaster reflexes. The patient was sent to the country and had a violent attack of supra-orbital neuralgia, after which he recovered.

The other case was a woman, thirty-five years old, who was suddenly attacked with sharp pain in the buttocks, perineum, labia, and down the back of the thighs to the knees, with simultaneous retention of urine. Vesical anæsthesia came on later, but no motor impairment. Over the area of pain was also impairment of the senses of touch, temperature, and pain, but slightly less near the knee than above.

These cases are sufficient to show the importance of the subject and the frequent actual occurrence of the forms of lesions involving the sacral plexus or other intra-pelvic nerves.

Let us briefly consider the main points in the diagnosis of such cases. In the first place, the great value of close examination by the rectum, which has already been dwelt upon, cannot be over-rated. Another important general point is as to the unilateral or bilateral character of these affections. They are commonly unilateral, or begin on one side, and, in exceptional cases, become bilateral. In some cases, however, of spontaneous neuritis, or pressure neuritis, or palsy, as in those reported by Imbert Gourbèyre, the symptoms may be nearly uniformly bilateral.

Large compressing and destructive lesions of the sacral plexus give nearly the same syndrome, only usually unilateral, as is presented by lesions of the lower part of the cauda equina. These symptoms, of course, vary somewhat according to the amount of nerve involvement. They are pain variously distributed in the domain of the sacral nerves—in the buttock, backs of the thighs and legs, soles of the feet and outer sides of the feet; anæsthesia, analgesia, and paræsthesia in the distribution of the nerves, from the second sacral nerve down to and including the coccygeal; paralysis and wasting particularly in the muscles below the knee, nearly all of which are in the sacral distribution; and in those muscles above the knee which occupy the distribution of the great sciatic and gluteal, small sciatic and superior gluteal nerves; trophic disorders, such as bedsores, perforating ulcers, abscesses, joint and bone changes, etc.; and vasomotor affections, such as changes in surface temperature, flushing, pallor, sweating, œdema, priapism, and coldness of the extremities. The bladder and rectum will be involved when the lowest sacral nerves are implicated—the nerves which do not strictly belong to the plexus. Reactions of degenerations will be present in most of the paralyzed muscles. Knee-jerk, ankle clonus, and the plantar reflex are likely to be absent on both sides; the cremasteric reflex as likely to be retained. The symptoms enumerated for lesions of the cauda equina are, in nineteen cases out of twenty, bilateral, although often not absolutely symmetrical. Consider now the same symptom-picture in one limb, and we have the phenomena produced by a large irritating, compressing, and destroying lesion of the sacral plexus.

Thorburn's[1] commentary on one of his cases of cauda equina lesion might, if the symptoms were not bilateral, be almost equally applicable to a pelvic plexus lesion. He says of this case that there was sensory paralysis of all the nerves of the sacral plexus, and possibly of the obturator, but not of the anterior crural or other lumbar nerves; the peri-

[1] Journ. Nerv. and Ment. Dis., vol. xiii., 1886, p. 743.

[1] Brain, January, 1888.

neum, penis, scrotum, and urethra, being supplied by branches of the pudic, were anæsthetic, but the root of the scrotum retained sensation, owing to the presence of twigs of the ilio-inguinal nerves, which, however, only descend to a very short distance. Paralysis with the reaction of degeneration was complete in the muscles supplied by the nerves of the sacral plexus. Those supplied by the anterior crural, although presenting the reaction of degeneration, were only weakened, and the adductors, supplied by the obturator, appeared also to retain some power. Cremasteric reflex remained, but below this point reflex action was lost.

Unilateral lesions of the sacral network must be occasionally differentiated from unilateral affections of the cauda equina. Usually, of course, cauda equinal symptoms are bilateral; but if the lesions are hemorrhagic, inflammatory, or from injury, they often are not symmetrically bilateral, and rarely they may be unilateral as in a case described by Erichsen, and quoted by Thorburn. It is, indeed, doubtful whether this case, which recovered under four months' treatment, was not, after all, one of rheumatic or traumatic neuritis of the sacral plexus. The patient could not stand but could move his legs in bed; he had not complete paralysis except in the peronei and extensors of the left ankle; rapid wasting of the left leg came on; numbness and tingling were present on the outer side of the left thigh, and partial loss of sensation below the left knee. The right limb was normal, he had occasional loss of control over the sphincters, and coldness of the extremities, especially of the left foot. The case was due to injury and came on gradually during ten days. Tenderness over the third lumbar vertebra was present after the tenth day, and symptoms of cervical injury were also present.

Weir Mitchell has given some diagnostic rules for the separation of spinal and cerebral from nerve lesions. Evidently, however, these are applicable only to the separation of true spinal cord lesions from lesions of the spinal nerves whether within or outside of the spinal canal. In other words, he has not made any distinction between lesions of the cauda equina within the canal and those of the plexuses in the abdominal and pelvic cavities. With our present lights we have little difficulty in differentiating lesions which involve the spinal cord itself from peripheral lesions. A much greater difficulty, as just indicated, is that which arises in separating irregular lesions of the extreme lower part of the cauda equina from lesions, particularly bilateral lesions, of the plexuses outside of the spine.

In cases of extensive bilateral lesions of the abdominal or pelvic plexuses, supposed to be cases of traumatic myelitis, the points mentioned by Mitchell might be of some service. He speaks, for instance, of a plan proposed by Stich.

"When cutaneous anæsthesia exists," he says "it is often easy to learn whether its cause lies in the nerves or in the central organs by following this plan. If the insensible region can be made the point of departure of reflex movements, the anæsthesia is of central birth, because to have reflex motion an excitation must have reached the spine, by which we infer healthy nerves, while the mere presence of anæsthesia will in this case indicate the existence of disease in the spine above the point which is the seat of the reflex power exhibited. If the proof be negative, and if the excitation cause no movement, we can arrive at no definite conclusion until, following the same sensitive nerve up the limb, and by seeking to excite it through its reflex acts, by touching the skin with a hot sponge or ice at successive points, we learn if at any upper portion of the tegument we can produce this result. Should we get an affirmative reply, we may presume that the anæsthesia is of peripheral origin. When, finally, the answer is negative up to the spine itself we learn nothing by this method, the total absence of all reflex movement being equally compatible with either loss of conducting power in the peripheral trunks and branches or with extensive alteration of spinal centres. The value of this means must be necessarily limited by the difficulty of exciting reflex acts from all regions of the skin." (*Injuries of Nerves.*)

Of another point which has, I think, but limited application, or is of doubtful value, Mitchell writes as follows:

"There is another peculiarity which separates all extra-central nerve lesions from cerebral, and also from spinal disease; but I do not feel that as yet it is available to any large extent. I noticed some years ago that in even the gravest lesions of nerve trunks, if a touch were felt at all, it was felt with no remarkable delay; while in many central palsies, if severe, and especially in such as result from extensive spinal malady, the time required for transmission to the sensorium was, as Cruveilhier pointed out, very largely increased—so much so, indeed, as to be readily estimated in a rough way by the hand of a watch beating quarter seconds, or still better by a metronome. The cause of this difference is still obscure to me, nor is it easy to see why diffuse sclerosis, for example, should so retard a sensory impression, while injured nerve fibres have no such effect."

Certain intra-pelvic neuralgias must be distinguished from neuritis or other lesions of the sacral plexus and intra-pelvic nerves. It is a question whether some of the cases reported as examples of neuralgia have not been rather forms of neuritis. Mitchell,[1] under the name of "Anal and Perineal Neuralgia," reported several interesting cases of this kind. This disorder, as described by him, is a painful affection of the anal and perineal regions, accompanied or not, as the case may be, with spasmodic contraction of the anal muscles and of those of the perineum. It is met with in locomotor ataxia, and also as an isolated affection usually following masturbation or sexual intercourse. It is likely that in these cases examination by the rectum would show tenderness over the anal and perineal nerves. Treatment by rest and anodyne suppositories is most useful, and points also to the probable neuritic character of the affection.

[1] Philada. Med. Times, vol. iii., July 19, 1883. p. 659.

LESIONS OF THE LUMBAR PLEXUS.

One of the commonest and most misleading affections involving the lumbar plexus is that compound lesion to which I have already referred, usually described under the comprehensive term psoas abscess. Eleven years ago I called attention to the frequent simulation by it of certain special forms of nervous affection, painful, paralytic, and spasmodic;[1] and, of course, the subject has been frequently written about, both before and since. Still, mistakes are constantly being made, and the subject is of considerable importance to neurologists. In one of my cases the diagnosis of crural neuralgia had been made, and no abscess was suspected. Pain most severe distally extended from Poupart's ligament to the inner side of the knee, along the course of the anterior crural nerve and its internal saphenous branch. This pain was relieved by sitting, or lying, or flexing the thigh on the pelvis, at the same time keeping the knee bent. A partial paralysis, or pseudo-paralysis, of the ilio-psoas muscles was present, the patient being compelled to lift the leg with his hands in order to cross the knee.

In another case on which I made an autopsy, the patient died three years after his initial symptoms, having been, in the meantime, the victim of numerous and diverse diagnoses, such as lumbago, sciatica, rheumatism, and paralysis from spinal exhaustion. His first symptom was severe pain in the lumbar region, which later extended down the right hip, and still later down the inner aspect of the thigh. He became unable to walk without support in eighteen months. It is not necessary to describe his progressive symptoms in detail. Later, he carried his body flexed upon the thigh, and both legs were wasted, the right more than the left. A significant fact was the absence of implication of the bladder and rectum, showing that the ano-vesical nerves, which arise from the conus and are distributed to the sacral rather than to the lumbar plexus, escaped. An accurate localizing study of this case, in its initial period, would probably have indicated its true nature; and operation performed early, after the method recommended by Treves and others, might have saved the life of the patient.

In one historical surgical case,[2] that of President Garfield, a quick appreciation of the symptoms produced by irritative lesions of separate cords of the lumbar plexus, and of the lumbo-sacral roots, was of considerable service in reaching a conclusion as to the exact course taken by the bullet. This case is also probably a study in intra-spinal nerve-root localization and worthy in this connection of our passing attention. Studying its abundant literature I find somewhat differing statements as to the nervous symptoms presented. The question whether the subjective symptoms presented sufficient facts for diagnosis was argued pro and con. with much warmth in some of the medical journals. One report states that the President suffered pains of a symmetrical character in both feet; another that hyperæsthesia was always more severe in the right than in the left foot and extended up the leg to some distance, and it was far more intense upon the dorsal than upon the plantar surface. The different contributors to the controversy all, however, agreed that hyperæsthesia was present on the right side of the scrotum, differing only as to whether it also extended over the lower abdominal region. The pointing was clearly to injury of the right ilio-inguinal, and probably also of the right ilio-hypogastric nerve, or their common trunk, as these nerves are both derived from the first lumbar root, and as a frequent position for this root is almost exactly where the ball entered the lumbar vertebra.

The ground has been taken that the cause of the symmetrical, or at least bilateral, pains in the feet was central, and therefore due to a lesion by jarring or concussion of the spinal centres opposite or near the vertebra perforated by the bullet. The terrific jarring of the spinal column by the concussion of the bullet was amply sufficient to have caused minute extravasations at the origins of the last lumbar and upper sacral nerves, which may have so irritated the roots of these nerves as to have caused bilateral pains in the distal portions of the lower extremities. The sensory nerves for the feet on both the posterior and anterior surfaces are derived from the sacral plexus; with the exception of the long or internal saphenous nerve, a branch of the anterior crural derived from the third and fourth lumbar roots. Within the spinal canal the nerves which go to form both the lumbar and sacral plexuses arise in a vertical extent of the cord which is very short, and is mainly opposite to the last dorsal and first lumbar vertebræ. It is significant that the roots of the first, second, and third sacral nerves are almost exactly opposite the upper part of the first lumbar vertebra where it was perforated by the bullet. The phenomena presented seem to admit of no other reasonable explanation. A crushing or destructive lesion of the lumbo-sacral region of the spinal cord was out of the question, as such a condition of paralysis, atrophy, anæsthesia, vaso-motor and trophic disturbances, and interference with the functions of the bladder and rectum, would have been present as could not have deceived.

True lumbo-abdominal neuralgia is comparatively rare, and, therefore, in cases of lumbo-abdominal pain, whether joined with crural pain or not, we

[1] Trans. Med. Soc. Pennsylvania, 1878.

[2] Among the contributions discussing this case are the following: Official Report—Amer. Journ. Med. Sci., Oct. 1888; White—MED. NEWS, vol. xl., No. 25, June 24, 1882; Bliss—Med. Rec., Oct. 8, 1881; Walsh—Walsh's Retrospect, Oct. 1888; Baker—MED. NEWS, vol. xli., No. 5, July 29, 1882.

should carefully inquire for local lesions of the lumbar plexus, as aneurisms, abscesses, neuritis, etc. A close study of such a case will often reveal its true nature. Lumbo-abdominal neuralgia, as stated by Erb, is commonly associated with intercostal. The presence of marked motor and anæsthetic disturbances with certain vesical, rectal, and sexual symptoms will help to decide against true neuralgia and in favor of lumbar plexus-disease, if the affection is unilateral. Many of the cases of so-called lumbar, sacral, abdominal, lumbo-abdominal, and other forms of plexic neuralgias are in reality cases of neuritis of these plexuses.

Certain affections which involve some of the cords or branches of the lumbar plexus, particularly abscesses—lumbar, iliac, psoas, and perinephritic—have not infrequently been wrongly supposed to be other diseases. Lydston[1] has reported a case in which acute lumbar abscess simulated at its beginning nephritic colic. A young man, aged nineteen, who had been previously healthy, awoke suddenly one morning with a severe pain in his right iliolumbar region, doubtless due to implication of the upper lumbar nerves. This pain had persisted for the entire time prior to his visit, and had been but imperfectly relieved by morphia. In view of the history and physical condition of this case, a diagnosis of renal calculus—probably impacted in the ureter—was made, as, according to the patient's statements, the location of the pain had gradually descended toward the right iliac fossa. The usual line of treatment for the condition which was supposed to exist was ordered, but later a large abscess pointed in the back to the right of the spine, between the ribs and the crest of the ilium.

An available knowledge of the segmental distribution of sensory nerves in the trunk and extremities may be of considerable service in diagnosticating lesions of the sacral and lumbar plexuses, even at an early period. Pain, anæsthesia, and paræsthesia are often experienced in these cases in special peripheral areas, as illustrated in the case of President Garfield, and in the pelvic tumor reported by Dr. Putnam, to which reference has been made. In Putnam's case the first and a recurring symptom was pain in the middle toe of the left foot, and subsequently, other symptoms were paræsthesia of the dorsum of the foot, and later of the outer side of the leg and the posterior aspect of the leg and thigh. These symptoms definitely indicated involvement of sacral nerve cords. The only portion of the foot which escaped was the inner side and great toe supplied by the long saphenous nerve, a branch of the lumbar plexus. The sensory symptoms and the particular order of their occurrence fairly indicated the particular method of the progressive involvement of the nerve cords and branches of the sacral plexus. Pain in cases of lesion of the nerve roots, either in their intra-spinal course or in the plexuses, is often projected to distal portions of the sensory nerves, and a close study of the distribution and progress of this pain will lead to a diagnosis of the location of the lesion producing it.

The question of operation for certain lesions of both the sacral and lumbar plexuses is one of some practical interest. It is probable that trephining the pelvis could be performed successfully in a few cases for lesions of the sacral plexus, such as abscess and removal of intra-pelvic growths, or excision of parts or the whole of the plexus. This could, probably, be best done by entering the pelvis from the median line above and behind; but I leave the question of the best place and method of operation for the consideration of surgical anatomists, simply suggesting its performance for some of the lesions discussed in this paper. In gynecological surgery several intra-pelvic operations by the sacro-coccygeal route have recently been reported; and this plan of operation has received the indorsement of distinguished German surgeons. It has been employed for pelvic abscess, for disease of the ovaries and Fallopian tubes, and for extirpation of the uterus. The lumbar plexus, in part of its course, can be reached by operation through the back.

[1] Medical Register, vol. iv., September 8, 1888.

MEDICAL PROGRESS.

Laparotomy in Visceral Wounds.—In an article on laparotomy in visceral gunshot and stab wounds (*Nashville Journal of Medicine and Surgery*, May, 1889), DR. C. S. BRIGGS presents the following general conclusions:

1. That laparotomy for traumatism should be resorted to in the majority of cases in which the existence of visceral injury is clearly established, the exceptions being such instances as from the great extent or necessarily fatal character of the wound, the possibility of recovery is absolutely precluded.

2. That where doubt exists as to the presence of gastro-intestinal lesions, Senn's insufflation method should be employed.

3. That the median incision is best adapted for laparotomy in these cases, except in penetrating wounds received from behind or where it is evident that one of the immovable viscera has been injured at such a point as to render the necessary examination impossible through the opening provided by the median incision.

4. That inspection of the abdominal contents should be thorough and painstaking, even at the risk of added shock by prolonged search, though expedition in this, as well as in other parts of the procedure, is certainly to be recommended.

5. That while it is unquestionably necessary for speedy repair in the approximation of visceral wounds to unite serosa to serosa, multiplied stitching is to be avoided, inasmuch as the nature of the reparative process in this class of wounds does not require such intimate closure,

the advantage to be obtained thereby is more than counterbalanced by the loss of time, and a great number of stitches in itself constitutes an element of danger.

6. That the continuous suture is the best adapted for nearly all intestinal wounds, as it is the simplest, the most quickly made, and can be used in such a manner as to possess all the advantages of the Lembert suture.

7. That when wounds with great loss of substance or closely placed multiple wounds are met with, Senn's approximation method by intestinal anastomosis may, when better understood, be substituted for resection, now considered necessary in such complications.

8. That the peritoneal toilet should be carefully made, and that the penetrating wound of the abdominal wall should be closed with as scrupulous regard for the care of the peritoneal injury at that point as at the wound in the median line.

Bicarbonate of Sodium and Bichloride of Mercury in the Treatment of Yellow Fever.—DR. GEORGE M. STERNBERG, in the *Therapeutic Gazette* of May 15, 1889, gives the results of his treatment of yellow fever with bicarbonate of soda and bichloride of mercury. Last August Dr. Sternberg published in the same journal a preliminary note on this treatment, and in the present number confirms its efficacy by numerous statistics. The original formula is as follows:

℞.—Bicarbonate of soda . . 150 grains.
Bichloride of mercury . . $\frac{3}{10}$ grain.
Water . . . . . 1 quart.—M.

Dose, about 1½ ounces every hour, to be given *ice-cold*.

The results of this treatment in Decatur, Ala., showed that out of thirty-two cases occurring among whites only four died; and out of thirty-two cases among colored people there were no deaths. The cases were reported by four practitioners. This method in Jacksonville was even attended with greater success. Out of one hundred and six cases treated with the alkaline and bichloride method, there occurred but five deaths—a mortality of 4.7 per cent. Seventy-nine of these cases and all the deaths were among whites—a mortality of 6.3 per cent. Twenty-seven cases were colored, with no deaths.

In twelve consecutive cases treated in the Garcini Hospital, in Havana, there were no deaths. Patients in which this treatment was used were never observed to have suppression of urine. Another list of eighty-nine cases comes from a Jacksonville practitioner, who exclusively used this treatment, with a record of five deaths. In Rio de Janeiro, out of four cases treated, three recovered and one died.

From his most recent experiences, Dr. Sternberg has found it advisable to make the following modification of his formula:

℞.—Bicarbonate of soda . . . ʒjv.
Corrosive chloride of mercury . gr. ½.
Pure water . . . . . 1 quart.—M.

Dose, about 1½ ounces every hour, to be given *ice-cold*.

The amount given should, however, vary with the age of the patient.

The Value of Glycerine Suppositories.—During the last meeting of the Greifswald Medical Society, reported in the *Deutsche med. Wochenschr.*, May 16, 1889, DR. NIESEL read a paper concerning his experiences with glycerine suppositories. He has used them 100 times in forty different cases, and does not think they are as valuable as has hitherto been considered. In cases of mild constipation, resulting merely from a large accumulation of feces in the lower bowel, the use of glycerine suppositories was quickly followed by a copious evacuation of feces, but in chronic constipation, or in cases where the bowels were in an atonic condition the suppositories had little or no effect. Unpleasant accompanying symptoms were never observed.

Picric Acid in Skin Diseases.—DR. CALVELLI, in the *Gazzeta Medica Lombarda*, March 2, 1889, gives the following formula for picric acid, which he says has proved of the greatest value in erysipelas:

℞.—Picric acid . . . . . grs. 24.
Water . . . . . f ʒ viij.

This application he combines with hypodermatic injections of quinine. The action of the drug was most favorable even in severe cases. It is also of value in cases of lymphangitis, eczema rubrum, and erythema. In a word, it may be regarded as a good local antiphlogistic.—*Revue Général de Clinique et de Thérapeutique*, March 28, 1889.

Trephining of the Pelvis for Suppurative Psoitis.—In the *Revue de Chirurgie* for March, DR. MICHEL GANGOLPHE, of Lyons, has a noteworthy article on this subject. He gives the histories of two cases of his own and a case of Boucher's, and refers to articles by Weiss, Fischer, Rinne, and Condamin. His conclusions are that infectious and even traumatic psoitis is of exceptional gravity, whether on account of the patient's general condition or of the extent of the local trouble, especially the possibility of implication of the hip-joint; that early evacuation of the pent-up pus is the best means of preventing a fatal issue; that trephining of the pelvis, as practised by him, is easily and rapidly done, is free from danger, and admits of the establishment of perfect drainage of the iliac cavity; and that, according to the features of the particular case, it may be associated with one of the classical lumbar, inguino-crural, or posterior crural incisions. The situation that he considers most eligible is a point nearly three fingerbreadths below the crest of the ilium, and three fingerbreadths behind the anterior superior spine.—*New York Medical Journal*, May 18, 1889.

Persistent Vomiting.—Persistent vomiting, especially that of pregnancy, is often most difficult to overcome, and baffles every effort of the physician; indeed, several fatal cases have been lately reported. DR. BLUMENSANDT, in *L' Union Médical* of May 2, 1889, says that he has found the following formula invaluable in such cases:

℞.—Hydrochlorate of cocaine . . 3 grains.
Tincture of anise . . . f ʒijss.
Spirits of menthol . . . f ʒijss.
Linden-flower water . . . f ʒv.
Syrup of cinnamon . . . f ʒj.—M.

A dessertspoonful to be given every hour until the vomiting has ceased.

The Prophylaxis of Diphtheria.—DR. L. BARD concludes an exhaustive article on this subject, which was con-

tinued through six numbers of the *Lyon Médical*, ending March 24, 1889, with the following summary:

The most reasonable and adaptable measures to insure the prophylaxis of diphtheria are as follows:

1. Prolonged isolation of the patients in special wards or buildings.

2. Total isolation of the sick, and also isolation—as far as possible—of those in attendance upon them.

3. Watchful care over those who might possibly be sickening with the disease, *i. e.*, the brothers or sisters of the patient, and others who have been thrown in contact with him.

4. Special inspection of schools, in order, as far as possible, to insure the removal of all convalescents and those with suspicious symptoms.

5. The immediate disinfection of the patient and all articles soiled by him.

6. The observation of rigid cleanliness and strict antiseptic precautions by all attendants of the patient, in order to prevent the spread of the germs through them.

7. Thorough disinfection of all utensils used by the patient, as well as of the room, etc.

The Treatment of Granular Conjunctivitis by Corrosive Sublimate.—ARNAUTS (*Annales d'Oculistique*, Jan.–Feb. 1889) gives some records of the results obtained in the treatment of trachoma, by corrosive sublimate, at the clinic of Dr. Romiée, during three years. His experience is strongly in favor of this remedy, in preference to the more commonly used nitrate of silver, sulphate of copper, and other caustics and astringents. He is especially pleased with its effect in old chronic cases, with severe pannus; and states that the disappearance of the corneal vascularity is so rapid that it suggests some special action of the sublimate on the newly formed vessels.

The following is the method employed. The patients are seen, if possible, twice a week, and at each visit, after instillation of a few drops of a five per cent. solution of cocaine, the conjunctival surface of the lids is brushed with a solution of corrosive sublimate, 1 to 120 or 1 to 100. In addition, collyria of the same salt are given, of the strength of 1 to 500 or 1 to 400, which the patients are directed to drop into the conjunctival sac three times daily. These drops give rise to some irritation and conjunctival injection, which are said to pass off in a few minutes. In sensitive patients, a weak solution of cocaine may be previously applied.

In the *Recueil d'Ophtalmologie* for February, 1888, STADERINI, writing on this subject, gave a very favorable account of his experience of the use of corrosive sublimate, stating that the results obtained by its employment in all stages of granular conjunctivitis were very satisfactory. He suggested that its action was that of an antiseptic, and a solvent of the lymphoid infiltration in the submucous tissue. If the microbe described by Sattler, Poncet, and others, be the chief or sole cause of trachomatous conjunctivitis, corrosive sublimate should prove of great efficacy in the treatment.—*Ophthalmic Review*, May, 1889.

Treatment of Whooping-cough with Carbolic Acid Spray.—DR. MAURIAC, of Bordeaux, who for some time has been strongly advocating the use of resorcin in cases of whooping-cough, has recently published the results of a series of experiments regarding the value of carbolic acid spray in this disease. His results are undoubtedly good. The spray is applied by means of a large steam atomizer, and about a quart of a five per cent. solution of carbolic acid is daily sprayed into the throat. The patient should be confined to one room until recovery is complete. In most cases the paroxysms of coughing were speedily relieved and the disease disappeared within twenty days.—*Münchener med. Wochenschrift*, April 23, 1889.

Belladonna in Whooping-cough.—Belladonna may be given both during the catarrhal as well as the spasmodic period of whooping-cough, and its use is usually attended with success. DR. J. SIMON, *Gazette hebd. Méd. et de Chir.*, May 3, 1889, advises its use during the catarrhal period, in the following formula:

℞.—Tincture of belladonna } āā gtt. x.
Tincture of aconite }
Cherry-laurel water . . f ℥ijss.
Linden-flower water . . f ℥iij.
Syrup of lactucarium . . f ℥j.—M.

A teaspoonful every three hours.

During the spasmodic period Drs. Hufeland and Trousseau, of Vienna, advise the use of powdered belladonna in preference to tincture:

℞.—Powdered belladonna root . 2 grains.
White sugar . . . ℥ijss.—M.

Divide into ten powders, and give one morning and night.

The above is for infants; for a larger child, the following may be substituted:

℞.—Belladonna root . . . 2 grains.
Bicarbonate of soda } āā 24 " —M.
Powdered white sugar }

Divide into ten powders, one to be given two or three times a day.

Dr. Monti considers the combination of belladonna with quinine of greater value than when given alone. He prescribes it as follows:

℞.—Powdered belladonna root . 2 grains.
Sulphate of quinine . . 8 "
White pulverized sugar . 31 " —M.

Divide into ten powders. Dose, two or three a day.

Creolin in Gynecology.—DR. JULES CHÉRON, in the *Gazette de Gynecologie*, May 1, 1889, contributes further valuable matter to the creolin question. He has used it extensively in female blenorrhagia with unquestionable success. He has also used it as a disinfectant in cases of purulent endometritis with excellent results. Its effects were non-irritant, but it produced a healthy appearance of the parts. It most admirably takes the place of iodoform.

Lanolin-sublimate an Antiseptic.—The majority of antiseptics seem to loose their strength almost entirely when mixed with oily or fatty substances; lanolin, however, appears to be a base which will not deprive these drugs of their antiseptic properties. DR. GOTTSTEIN (*Therap. Monatshefte*, No. 3, 1889) has recently experimented

largely with lanolin-sublimate, and has found that the antiseptic properties of sublimate of mercury are in no-wise diminished by being mixed with lanolin. The ointment is prepared by mixing a solution of sublimate with hydrous lanolin. The strength of the mixture is usually from 1 : 5000 to 1 : 1000.—*Münchner med. Wochenschr.*, April 2, 1889.

Antiseptic Treatment of Typhlitis.—DR. BOUCHARD, in the *Gaz. Hebdomadaire*, April 5, 1889, bases his treatment of typhlitis on the following principles: First, to relieve the pain; second, to insure complete intestinal rest, and to reduce, as far as possible, all intestinal fermentation; third, to insure perfect asepsis of the large intestine.

The treatment should, therefore, be sedative, dietetic, and antiseptic.

1. The pain may be relieved by the use of poultices, mercurial-belladonna ointments, and hypodermatic injections of morphine.

2. To prevent possible obstruction of the bowels, mild laxatives, such as magnesia, or a dessertspoonful of castor oil, should be given. The use of strong purgatives is to be strictly avoided. The diet should consist of milk with lime-water, or with the yolk of an egg; solid food, or easily fermenting food, should not be given.

3. Complete antisepsis of the lower bowel can be insured by the use of antiseptic irrigations. Bouchard uses the following twice daily:

℞.—Water	1000	parts.
Borate of soda Tincture of benzoin Camphorated alcohol	āā 5	"

This solution should be used at a temperature of 100° F., two pints of the solution being used at each irrigation.

Treatment of Hypertrophy of the Breast.—The following treatment is advised by DR. KISCH in the *Deutsch med. Zeitung*. The primary treatment should consist in the use of the following salve:

℞.—Deodorized iodoform . .	1 part.
Vaseline	15 parts.
Tincture of menthol . .	q. s.—M.

This ointment should be applied to the breast daily. In the later stages, the salve may be substituted by the following lotion:

℞.—Alum	1 part.
Acetate of lead . . .	5 parts.
Dist. water	100 " —M.

Compresses wet with this mixture should be applied, and may be kept moist by covering them with a piece of rubber cloth.—*Revue Général de Clin. et de Thér.*, May 2, 1889.

Gastro-enterostomy.—At a recent meeting of the Royal Medical and Chirurgical Society, MR. HERBERT W. PAGE described a case of gastro-enterostomy in a man aged forty-eight, who had suffered from malignant pyloric obstruction for several months, and who was operated on according to the method of Woelfler in St. Mary's Hospital in December, 1887. He was much relieved by the operation; he regained his appetite, and the vomiting, which had been incessant and exhausting before, almost entirely ceased. He lived for seventy-two days in comparative comfort, but did not gain in weight, a circumstance due, it was believed, to the fact discovered at the necropsy that the lower end of the ileum had been sutured to the stomach.

Reference was made to a recent case in which the same accident befell Lauenstein, and special remarks were directed to this untoward feature and to the necessity of taking such steps at the operation as should secure the right piece of jejunum or upper ileum being chosen. An appended table contained in all thirty-eight cases, two of which were subjected to both pylorectomy and gastro-enterostomy at the same time. Of the thirty-six cases of gastroenterostomy alone fifteen were fatal, directly or indirectly as the result of the operation. Collapse was the most frequent cause of death, and examination of the table showed that those patients only were fitted to bear the operation who had not been greatly exhausted either by vomiting or by extension of the cancerous disease. It was suggested that the use of Senn's decalcified bone-plates, by doing away with the necessity of putting in so many sutures, was likely to shorten the time spent over the operation, and that thereby the risk of death from shock might be materially lessened. There had been a steady decline in the rate of mortality. In the first eighteen cases there were ten deaths, while in the second eighteen there were only five. In the writer's opinion gastroenterostomy was worthy of more attention than it had hitherto had in this country. In properly selected cases it appeared to him to be an operation distinctly justifiable, and one to be recommended, for it was capable of bringing relief from the distressing symptoms incidental to pyloric obstruction, and was thereby, in all probability, the means of prolonging life.

MR. BARKER commented on the duration of the operation, and urged that the time occupied would always vary with the dexterity of the surgeon; it was impossible to use a Lembert's suture rapidly without practice. In Germany, no surgeon performed this operation on the human subject without repeated practice. The whole operation had been completed in a quarter of an hour on one occasion.

MR. PAGE, in reply, said that he did not claim that the operation had prolonged life. On the contrary, he regretted that, owing to the lower end of the ileum having been put into connection with the stomach, life was possibly shortened. This error had occurred in the practice of another surgeon. He could not help thinking that careful perseverance in the use of the bone approximation plates, as advocated by Senn, of Milwaukee, would prove of value in the future.—*The British Med. Journ.*, May 18, 1889.

Creolin in Dysentery.—DR. N. P. OSSOWSKY contributes to the *Wiener medicinische Presse*, May 5, 1889, the history of sixteen cases of dysentery which were successfully treated with creolin irrigations of the bowels. A one-half per cent. solution was used for the purpose, and about two quarts were injected three or four times daily. In three cases the disease disappeared after the third irrigation, in nine the bloody stools ceased after the third day of treatment; the most obstinate was cured in six days. All the cases were most severe at the outset. Dr. Kolokoloff, in the same journal reports twelve cases which were cured by the same treatment.

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SATURDAY, JUNE 15, 1889.

THE SANITARY SITUATION AT JOHNSTOWN.

THE appalling disaster which has devastated Johnstown and vicinity is without parallel in this country. The magnitude of the calamity has arrested the attention and elicited the sympathy of the civilized world. The outpouring of offerings in aid of the survivors is unprecedented. The humane impulse to render personal assistance to a community overwhelmed and paralyzed by the most sudden and direful of events has brought to the scene hosts of noble-hearted and strong-handed men who are bending every exertion to assuage the sufferings and provide for the present wants of thousands of unfortunate ones who have been so suddenly swept of the possession of kinsmen, friends, and homes. The temporary wants of the people are being supplied with commendable alacrity, and there will be no want of funds for all needful purposes for the immediate future.

There are, however, problems of the most serious import, which demand immediate consideration by the wisest and coolest of heads. They involve the sanitary administration of the locality in behalf of local interests and the interests of more or less remote communities whose health is threatened by causes arising at Johnstown, unless the most prompt and effective measures are adopted for arresting them.

The Conemaugh flows into the Alleghany River and contributes to the water-supply of a large population. The pollution of this stream by the decomposing remains of human bodies and the putrefying carcasses of animals is a constant menace to the health of thousands of people who depend on the river to which it is tributary for their water-supply.

The danger of pollution from the scouring of the shores of the stream and the washing into it of cesspool and other deleterious organic matters could not be averted. The cause has ceased, but the effects are yet to be developed. There remains, however, a constant and increasingly dangerous source of pollution in the vast collection of débris overlying and choking up the river, which contains perhaps thousands of human and other remains in an advanced state of putrefaction, and hurtful matter of various kinds, which it is an imperative sanitary duty to get rid of at once. With every means within the power of human ingenuity to contrive, supplemented by ample resources, it is not thought possible to remove the wreckage, piecemeal, for several weeks. In the meantime there is great danger of disease by polluting the water and by poisoning the atmosphere with fetid vapors.

Notwithstanding the profound reverence for the dead which we all alike share, and the respect we owe to the feelings of the afflicted, the health of the living is a paramount question which in the conflict of opinions must take precedence of all other considerations. There should be no further delay of proper action. Too much time has been wasted already in almost fruitless attempts to remove the wreckage. The public health demands the immediate removal of the offensive material. The means have already been suggested and should have been carried out before this. By the application of the torch, swift and thorough destruction of the vast mass of combustible material will be effected, and what remains can be quickly removed. The purifying and destructive effects of fire must be resorted to as the last and only means of surely solving a problem which has baffled all devices hitherto employed. Until this has been accomplished and the river water has had time to purify itself, it use for drinking purposes should be avoided. Where from the necessities of the case this is impossible the water should be boiled, as advised by the State Board of Health.

It is not idle phantasy that draws a picture of danger from the gorge at the stone bridge. Experience, especially that of campaigns, has taught the lesson by which we are endeavoring to profit. It is

a matter of record that when soldiers have been exposed to the products of decomposition of animals, the influence on health has been most injurious. Pringle has shown this to be a decided cause of insalubrity. Diarrhœa and dysentery are the principal diseases, but other diseases are likely to be increased in severity. It may be remembered that at the siege of Sebastopol, where in the French camp a large number of dead horses lay exposed and decomposing for a number of days, the effect, as described by Reynal, was most disastrous upon the health of the troops.

The burial of the dead is another matter for serious consideration. In the haste incident to the pressure of the first few days, and in the unavoidable absence of careful sanitary supervision, sufficient attention has not been given to the selection of the places of interment and to the manner of burial. So vast a number of bodies crowded within a limited space, and in a porous soil, many of them being placed in shallow graves, will, at this season of the year, lead to rapid decomposition and the pollution of the air and wells, if proper precautions are not taken to prevent it.

The situation at Johnstown is similar to that of a battle-field after a sanguinary conflict. In time of war it becomes a necessity to bury in trenches, and when disinfectants are at hand they are freely used. But it is generally at some subsequent period that a more thorough sanitary treatment of the bodies takes place. At Metz the graves were disinfected with lime, charcoal, and sulphate of iron. Subsequently, for fear of contamination of the water-courses, the bodies were treated with chloride of lime, charcoal, and carbolic acid. The Belgian experience at Sedan favored the use of chloride of lime, nitric acid, sulphate of iron, and chlorine gas. Carbolic acid did not answer the purpose as well. The work of burial should now be conducted with the free use of disinfectants, and when completed, the early and incomplete graves should be uncovered, where necessary, and the bodies subjected to thorough treatment under skilled superintendence. The use of rapidly growing trees and shrubs is a most efficacious means for the absorption from the soil of organic substances.

There are special sanitary reasons for the prompt removal of the deposits from the streets and spaces of Johnstown. The character of the deposit and its exposure to the heat of this season of the year make it highly probable that unhealthy effluvia will be generated, unless counteracted by the retarding or neutralizing effects of chemical agents. To all appearances the surface is clean, but this is not true of the deposit. It is intimately mixed with excreta forced out of numerous wells and impregnated with organic matter of various kinds borne in the sweeping flood. Under the influence of heat and moisture decomposition must rapidly take place, and the gases of putrefaction pollute the air. The free use of solutions of carbolic acid and sulphate of iron, and of chloride of lime in some cases, sprinkled over the surfaces and streets before and after the removal of the matter, will prevent the formation of unhealthy emanations, and aid greatly in the preservation of the health of the town.

The disposal of excreta will require the strictest sanitary supervision. Nuisances in this connection are likely to be created by the homeless ones and the population suddenly brought into the town who live in tents or improvised homes which have been located more with a view to convenience to the field of operations than to the hygienic advantages of the site. The regulations observed in a well-ordered camp are those which should be applied to the present exigency. The location of the latrines and their management should be such as to preclude any possible contamination of the water-supply or pollution of the air.

Disease is so frequently traced to inefficient modes of disposing of excreta, that it behooves the authorities of Johnstown to look well to the methods being adopted in the camps in its vicinity. The sites of the latrines being well selected, trenches should be dug twenty or more feet in length, ten feet deep, and two feet wide at the top and three feet at the bottom. The earth thrown out may be placed on three sides. Branches of trees or canvas may be arranged as screens. Chloride of lime and copperas should be regularly used, and nine inches of earth thrown in every day. When the soil is five feet from the top, the pit should be filled in and another dug, and the earth mounded to mark the spot. Tubs may be used as urinals, which can be emptied and disinfected each day. The soiling of the space about the camp should be prevented, and to this end a corps of scavengers should be organized to remove all surface filth and refuse, to attend to the latrines and urinals, and to destroy waste matter by fire. The sanitary policing of the district is a measure of imperative necessity. It will be advantageous to the health of the camp to change the site after a limited occupancy. Attention should also be directed to

the privies of the flood-swept part of the town, which may be only superficially covered by deposits left by the receding waters. The general water-supply seems to have been unaffected, but it should be carefully guarded. Wells in the inundated district may have been polluted, and should therefore be regarded with suspicion. The people should be cautioned not to use the water from the river in its present contaminated condition.

Sickness incident to exposure, fatigue, insufficient clothing, and improper food will doubtless be prevalent, but the admirable accommodations in hospitals and the generous provision made for medical treatment and for careful nursing of the sick and wounded by individuals and humane societies will be ample for every emergency.

There is need of improvement in the manner of housing the extra population, in the quality and preparation of the food, and in its distribution. Dependence should not be placed in the irregular and uncertain supply of commissary stores. Sickness is a common result of improper food, and therefore regular supplies of fresh meats, vegetables, milk, and bread should be provided for, and liberally furnished to the sufferers and to the laboring men, who are working under great disadvantages. Nutritious soups can be easily and quickly prepared, and should be a standard article on the commissariat's list.

The gravity of the situation can be greatly lessened by sending away temporarily the remnants of families deprived of their homes. Orphans can be cared for in the numerous institutions within the State. Kind friends are ready to provide for the wants of the homeless, if assisted to get away. The sick and injured able to travel have been invited by the open doors of many hospitals. This project has already been started in a small way, and should be followed up even to the extent of providing out of the general fund for their maintenance in adjoining towns. Relief will thus be afforded to the suffering ones and overcrowding prevented. The energies and labors of the organizations now aiming at the restoration of order out of chaos will thereby be greatly relieved of a pressure which impedes their efficiency. Idlers and curiosity-seekers are impediments, and are rightfully excluded from the town.

The destitute are fairly well clad. Much of the old clothing sent to the survivors being utterly worthless should be promptly disposed of by fire. Soiled clothing may disseminate disease, and it is the part of prudence to exclude it from distribution.

Intelligent coöperation of the various interests in the field, and thorough organization of the different branches of labor under a central authority, clothed with ample powers, are the need of the hour. By system, and only by system, intelligently and rigidly enforced, is rapid and unimpeded progress to be made in reclaiming the waste places and restoring the town to its inhabitants.

The suggestions which have been made are based upon thoughtful study of the sanitary aspects of the situation. If they are properly carried out we are sanguine enough to believe that much sickness will be prevented and further disaster averted.

Great credit is due to the State Board of Health for the prompt, energetic, and intelligent manner in which it has met the exigencies of the situation. Many of the sanitary measures which we have outlined it has already put into active operation, and the remainder, we doubt not, it will efficiently carry out so soon as time and resources will permit.

DR. C. K. MILLS and Dr. Thomas J. Mays, a Committee from the College of Physicians of Philadelphia and the Philadelphia County Medical Society to carry relief to the medical practitioners, sufferers by the flood, reached Johnstown on Monday. They found that six physicians were drowned and twenty-one had lost all they had. They will immediately expend about $3000 in the work, which has been subscribed by the profession of Philadelphia, and more money will be raised to continue it if required.

DR. J. H. MUSSER has been elected Assistant Professor of Clinical Medicine at the University of Pennsylvania.

WE are informed that the Warren Triennial Prize of the Massachusetts General Hospital, of $500, has been awarded to Drs. H. A. Hare and Edward Martin, of Philadelphia, for their essay entitled "The Functions of the Phrenic Nerve and the Best Methods of Artificial Respiration."

MRS. JANE C. STORMONT, widow of the late Dr. D. W. Stormont, of Topeka, has generously given $10,000 to the Kansas Medical Society for the purchase of a library for the benefit of the profession.

THE New York Post-Graduate Medical School will open a summer term on June 17th. The fees for this session are one-half those of the winter

term, while the advantages in the Dispensary of the School and in many of the Hospitals of the city are the same as during the winter.

DRS. IRWIN, FERGUSON, and HANCE, the physicians who performed an autopsy on the body of Washington Irving Bishop, the mind-reader, have been indicted for making the post-mortem examination without first obtaining the legal authority to do so. The penalty for this technical offence is imprisonment for not more than one year, or a fine of not more than $500, or both.

The District Attorney seems to have been disposed to let the matter drop, but Mrs. Bishop, the mother of the deceased, insisted on indictment. That Bishop was alive and in a trance when the autopsy took place no one but Mr. Bishop's immediate relatives appears now to believe. The Coroner's jury entirely exonerated the physicians.

THE Queen on the occasion of her recent birthday raised Sir William Jenner to the rank of the First Class, or Knight Grand Cross (Civil Division) of the Most Honorable Order of the Bath, which is said to be the highest distinction ever yet conferred by the British Crown on a medical man, and we cordially hope that Sir William may have many years' enjoyment of his deserved honor. On the same occasion the Queen conferred a baronetcy upon Sir George H. Porter, of Dublin.

DR. JAMES B. HUNTER, of New York, died at his residence in New York, last Monday, at the age of fifty-two, of acute rheumatism complicated with endo- and pericarditis.

Dr. Hunter was a native of Geneva, New York, received his medical education at the Ohio Medical College and immediately upon graduation in 1861 he entered the army and served as assistant surgeon, and later as surgeon of the 60th Regiment of Ohio Volunteers. For two years and a half, up to 1872, he edited *The New York Medical Journal* in conjunction with Dr. W. T. Lusk, and then for six years he was its sole editor. He was a member of the American Medical Association, of the County Medical Society, and of the Obstetrical Society of New York, and was connected with the Woman's Hospital since 1874, the Cancer Hospital, of which he was one of the founders, the New York Infirmary for Women and Children, and Professor of Gynecology and President of the Faculty of the New York Polyclinic.

SPECIAL ARTICLE.

MEDICAL NOTES FROM JOHNSTOWN.

PROFESSOR W. S. FORBES, of Jefferson Medical College, who organized and carried to Johnstown the first medical relief corps and stores to reach the flooded district and who only returned last Tuesday, has kindly placed in our hands the following brief notes of his medical observations while on the ground.

"In a visit to Johnstown immediately after the flood in the Conemaugh and Stony Creek Valleys on the 1st of June, I was very strongly impressed with the fact that by far the great majority of persons exposed to peril during the flood and who had escaped, had ecchymosis of the conjunctiva to a greater or less degree. The ecchymosis was very decided in very many persons and caused a great deal of suffering. The blood out of its normal vessels acted as a foreign body and caused many parties to seek professional relief.

"In the bodies of the dead the eyeballs appeared protruded as a general rule and the eyelids were opened wide. The bodies were considerably bruised. In one instance an arm had been torn from the body at the shoulder-joint and could not be found. In no case had decomposition progressed to any extent until about the sixth day. The temperature of the air was about 76° F. during this time, nor did it fall below 60° F. at any time. The sun was out only one day, the 5th; after the sixth day, on the exposure of the body decomposition was rapid.

"Nervous shock was a prominent feature among all the survivors. On hearing of the death of their relatives, several cases were so overcome that functional activity seemed paralyzed, nutrition was suspended, and death ensued.

"There were comparatively few injuries among the rescued, and they slight in character. It seemed to be, for the most part, either death or escape without injury.

"There has been thus far a remarkable freedom from all forms of sickness, in view of the exposure incident to the flood. On the sixth day I had heard of but a single case of pneumonia, and a few sporadic cases of measles.

"Six of the physicians of Johnstown were drowned —more than one-fourth of the entire number in the town. These men were lost in their endeavors to assist others to escape—and by their character and death illuminate the entire body of their profession. Dr. Brinkey was a conspicuous example of heroic devotion. He rushed again and again from safety into peril, urging the way of escape to many, until he was overwhelmed with a large party, whose bodies with his own were recovered under the débris of the Hurlburt House.

"As a type of the self-sacrificing devotion shown by the physicians of Johnstown toward the sufferers, we may particularize the case of Dr. W. B. Lowman, the founder of and surgeon-in-chief to the Johnstown Hospital. As soon as he had escaped from the débris of his home and rescued his family of eight persons, including his venerable father Dr. John Lowman, and many who had been caught and given refuge in his house as they were being swept by in the flood, he at once set to work on his further mission of mercy. He immediately despatched a messenger on horseback across the country to Somerset, some miles away, and was the first to summon by telegraph medical aid and stores from Philadelphia, and he has been constant and untiring in his personal labors and in the organization of medical relief.

"Dr. Matthews, another of the surviving physicians, early in the flood had two of his ribs broken, but, notwithstanding, remained with a large party of women in a house where they had been rescued and took charge of several of them who had premature confinements brought on by the tremendous strain on their nervous systems. I did not hear of the death of a single one of them. This entire party was rescued under Dr. Matthew's guidance.

"Of the surviving physicians, some lost members of their families and all nearly all of their worldly goods.

"The State Board of Health under the superintendence of Dr. Benjamin Lee, was promptly on the ground, and, although it was necessarily greatly hampered in the difficult problems it had to cope with, it rendered most efficient and valuable service in all matters relating to sanitary details.

"This catastrophe has developed in the afflicted region and in the country at large, a depth of generosity, a breadth of humanity, and an elevation of character that do honor to the human race.

"W. S. FORBES, M.D."

1704 WALNUT STREET, PHILADELPHIA.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eleventh Annual Congress, held in Washington, D. C., May 30 and 31, and June 1, 1889.

(Concluded from page 642.)

FRIDAY, MAY 31—MORNING SESSION.

DR. T. AMORY DE BLOIS, of Boston, read a paper describing

SOME OF THE MANIFESTATIONS OF SYPHILIS OF THE UPPER AIR-PASSAGES

and exhibited drawings showing the conditions which he had found.

DR. F. H. BOSWORTH, of New York, referred to the necrosis of bone which occurs in syphilitic ulcerations. He did not believe that syphilitic ulcerations extended from one part to an adjacent part. Such ulceration is due to the breaking down of a gummatous deposit, and does not extend beyond the limits of the original gummatous deposit. The necrosis of the bone he held to be due to the interference with nutrition of the bone, caused by the original deposit, and that after the breaking down of the gummatous infiltration has taken place, the ulceration is kept up by the necrosed bone, and treatment should therefore be directed to this point. He agreed with the author of the paper that potassium iodide was to be employed until the disappearance of the lesion, and that mercury should be used subsequently. Operative interference should be postponed until the syphilitic disease was well under control.

DR. C. C. RICE, of New York, said that in these cases there was often cicatrization and contraction above the visible adhesions, so that after the adhesions are freed, the results as regards phonation and respiration are not what would be expected. This contraction in the post-nasal pharynx requires to be stretched in order to obtain good results. In regard to operations, in one case where there were adhesions, and where there had been no syphilitic manifestations for many years, he applied the galvano-cautery to the adhesions. The ulceration which followed took on an unfavorable character, and continued to spread despite constitutional and local treatment.

DR. J. N. MACKENZIE protested against the too vigorous removal of diseased bone from the nasal passages. It frequently happens that more is pulled out than is desired, and sometimes from dangerous regions.

DR. WILLIAM H. DALY objected to the use of the galvano-cautery in tissues of the low vitality of syphilitic tissues. He believed that the galvano-cautery was a much abused, useful instrument. He felt satisfied that better results could be obtained in the fauces, in the nose, in the larynx, in any operation by using a sharp cutting instrument and allowing as free hemorrhage as is consistent with good judgment. The freer the hemorrhage within certain limits, the more certain is there to be immunity from septicæmia and rapid union.

DR. CHARLES H. KNIGHT, of Boston, then read a

NOTE ON THE GALVANO-CAUTERY IN THE TREATMENT OF HYPERTROPHIED TONSILS.

This paper was supplementary to one read two years ago. The galvano-cautery cannot be satisfactorily used in young children, and in them the guillotine is preferable. In older children and adults the galvano-caustic point will prove of service. The galvano loop was especially considered. With this the operation can be done at one sitting. The portion removed by the loop does not indicate the real extent of the operation. A portion of the remaining tissue sloughs, so that the operation with the loop is better than with cutting instruments. There seems to be little more pain with the galvano loop than with the guillotine. The former operation is, however, more disagreeable on account of the odor of burning flesh.

DR. T. A. DE BLOIS had used the electrolytic needle with good effect. Under cocaine, the pain of the procedure is very slight. Half a dozen punctures each day will in a short time produce great diminution. This

method is used only in adults. In children the tonsils are very apt to diminish in size without treatment.

DR. C. E. SAJOUS had frequently used the galvano-point, but had to make as many as eighteen or twenty punctures in order to obtain satisfactory results. After the second visit the patient expresses very little objection to the operation. The galvano-point is useful in the treatment of enlarged tonsils, especially where the density is not great. Here the cicatricial contraction assists in reducing the size.

DR. DALY believed that in the normal throat no portion of the tonsil extended beyond the line of the half arches, and in abscission of the tonsil our object should be to restore the throat as nearly as possible to its normal condition. This cannot be thoroughly done with the tonsillotome, but the operation must be completed with forceps and bistoury.

DR. F. H. BOSWORTH could see no reason for treating this condition by means of eighteen or twenty punctures when the whole trouble could be removed in a few seconds by a very simple operation.

DR. C. C. RICE believed that there are a few cases in adults where there have been frequent attacks of tonsillitis, and the tonsils are greatly congested, and in which the galvano-cautery is of service.

DR. JOHN O. ROE, of Rochester, then read a paper on

THE TREATMENT OF DISEASED TONSILS WHEN UNATTENDED WITH HYPERTROPHY.

The conditions referred to are of marked clinical importance, but their consideration is ignored by writers upon these subjects. The most common form of disease of the tonsil is hypertrophy, and in children it is rare to find any other form. During adolescence the tonsils may diminish in size, but they do not return to their normal condition. The small tonsils in adults have often followed hypertrophy. This is a point in favor of the removal of enlarged tonsils. The two forms of disease of the tonsil to which attention was called were : first, chronic disease of the crypts and lacunæ ; and, secondly, fibroid degeneration of the stroma of the organ—the cicatricial form of the disease. The first is the result of chronic follicular catarrh of the tonsil, and is usually associated with chronic follicular catarrh of the pharynx. The treatment of these conditions is important, not only on account of the disease itself, but also because they are the source of recurrent trouble, and may cause reflex symptoms. Local applications are practically useless. The galvano-cautery, which is useful in the treatment of hypertrophied tonsil, may be employed here, but is not as efficient as it is in the former condition. The treatment *par excellence* is ablation with the knife. The diseased crypts may be laid open and cauterized with chromic acid or fused nitrate of silver. Excision is, however, the best plan. It is rarely advisable to attempt removal of the whole mass at one time, on account of the adhesions to the pillars. The use of cocaine lessens pain and hemorrhage. In every instance in which the speaker had employed excision the cure had been perfect, with entire relief from the attendant symptoms.

DR. H. L. SWAIN, of New Haven, reported a case in which recurrent attacks of swelling of the lingual tonsil were caused by the presence of hard masses in the faucial tonsils. The attacks were subdued by treatment of the crypts by cutting into them with the galvano-cautery, and thoroughly cauterizing their interior.

DR. J. SOLIS-COHEN, of Philadelphia, had seen many cases of spasmodic cough, due to nothing but the presence of these masses in the crypts and lacunæ of the tonsil. These had been found not only in the enlarged but also in apparently contracted tonsils. It is sometimes necessary to produce some gagging, so that the posterior portion of the tonsil presents, in order to discover this condition. In enlarged tonsil, the best treatment is probably excision, but in these atrophied tonsils he had pressed the matter out with a blunt scoop, and then applied a simple astringent consisting of creasote, gr.j ; iodine, gr.j ; potassium iodide, gr.v, to glycerine, ℥j. If this does not answer, he cuts the crypts open with scissors, and scrapes them as thoroughly as possible. This affection is not as thoroughly appreciated by the profession as it should be. He had seen cases where cough existing for five to ten, or more, years, had been permanently relieved by treating this condition.

DR. DALY referred to cases in which the patients were really sick as the result of these lacunæ becoming filled with cheesy matter.

DR. F. I. KNIGHT described a case of long-continued irritative cough, in which the removal of a cretaceous mass as large a pea from a crypt of the tonsil was followed by complete cure.

DR. SAMUEL JOHNSTON, of Baltimore, referred to three cases in which the collection, instead of consisting of soft cheesy material, was hard, looking like spicules of bone, and adhered with great intensity. These bodies were not limited to the tonsil, but were also found on the lower part of the fauces, and on the post-pharyngeal wall.

DR. HARRISON ALLEN stated that he had referred to this condition in a paper published in 1882. The solid matter is retained in the crypts. This pressure is often produced by the anterior fold. Sometimes the secretion has gotten out of the tonsil, but is still retained behind the fold. More frequently these masses are beneath the tonsil, under an adventitious membrane.

DR. J. SOLIS-COHEN reported

A CASE OF SARCOMA OF THE THYROID GLAND.

The case was one of sarcoma of the thyroid gland, with pressure on the right sympathetic nerve ; unilateral tonic spasm of the laryngeal muscles ; intermittent clonic spasm of the muscles of the opposite side. There was stenosis from the pressure of the tumor. For this, tracheotomy was performed. This afforded relief for a number of months. Hemorrhage occurred twenty months later, but was controlled without much difficulty. Gradually marked disturbance of the two pneumogastrics supervened and there was great interference with respiration. It was accidentally discovered that any irritation of the mucous membrane of the trachea would relieve the dyspnœa, and at once the lividity of the face would disappear. This effect was readily produced by tracing the posterior wall of the trachea with a bent wire passed through the tracheotomy tube. The patient died of exhaustion.

SATURDAY, JUNE 1.—MORNING SESSION.

DR. C. C. RICE read a paper on

SOME UNUSUAL MANIFESTATIONS OF TUBERCULOSIS OF THE LARYNX.

The first unusual manifestation referred to was where

syphilis and tuberculosis of the larynx coexist. Here the lesions of one process mask those of the other. Here the prognosis depends upon which is the more active condition. This combination is more common than is generally supposed, and probably some cases of cure of supposed tuberculosis should be placed under this head. A second unusual manifestation is the engrafting on the tuberculous process of a new tissue, rendering the diagnosis difficult. This new tissue may be of two forms, either a granulation tissue or a papillomatous growth. The third condition was adhesive inflammation at the anterior ends of the vocal bands. This must be rare, as the tubercular process shows little tendency to cicatrization and healing. It is liable to occur only when the cords are immovable and there is general proliferation of tissue. The last condition referred to was one in which the tubercular deposit in one arytenoid was the only manifestation of the disease in the larynx, the remaining parts of the larynx being perfectly normal.

DR. W. H. DALY was satisfied from his experience in three or four cases, that in some instances tubercular ulceration of the larynx may be cured. In these cases there was no evidence of syphilitic disease, and in at least some of them the tubercle bacilli were found. Recovery has followed the use of alkaline sprays and inhalations with the free use of iodoform. He believed that tuberculous ulceration of the larynx might occur without evidence of tubercular deposit elsewhere.

DR. J. C. MULHALL, of St. Louis, thought that there might be a catarrhal ulceration of the larynx, and that this was a curable condition. He did not think that it would be easy to prove that tubercular disease of the larynx was ever primary, although it is sometimes the first sign of the condition. In tubercular ulceration of the larynx he had used pure lactic acid and had seen the ulceration heal, but he could not say that he had ever seen life prolonged to any appreciable extent.

DR. F. I. KNIGHT had not the slightest doubt that tubercular ulceration of the larynx does get well. He had seen such ulcers heal under alkaline sprays and iodoform, and more especially under lactic acid. He thought that it was possible to have the tubercular disease of the larynx as a primary affection, but in the majority of cases careful examination will reveal evidence of disease of the lung. He did not regard changes in the respiratory murmur and in respiration as the most important signs of early phthisis. He placed more reliance upon the localized râles which are heard on coughing. In order to develop this sign the patient should not inspire immediately before or after the cough, but should cough from a rest. He had seen but a few cases in which he regarded the disease as primary in the larynx.

DR. W. E. CASSELBERG, of Chicago, reported a case in which he found catarrhal ulceration of the larynx, which readily healed under cleansing treatment, and there has been no return of the ulceration during a period of two years.

DR. J. N. MACKENZIE thought that the question of the possibility of the existence of primary tubercular disease of the larynx had been settled by examinations upon the post-mortem table, where, in a few cases, careful examination of the body revealed tubercular deposit nowhere but in the larynx. While a tubercular ulceration of the larynx may heal, this by no reason indicates the cure of the disease. He had seen the coexistence of syphilis and tuberculosis in the larynx several times, and it is difficult to say which is the syphilitic and which the tubercular ulceration. The only test is that of treatment. He had never seen what could be called catarrhal ulceration of the larynx. In regard to treatment, he thought that more harm than good was produced by the employment of harsh measures. There is a form of ulceration which occurs in the later stages of phthisis principally near the bifurcation of the trachea, which is probably due to the corrosive action of the sputum.

DR. W. C. GLASGOW believed that tubercular ulcers of the larynx never healed. He had seen cases of ulceration of the larynx heal under simple treatment, but he did not consider these to be true tubercular ulcerations. He had used with great satisfaction during the past two years the peroxide of hydrogen in the treatment of such ulceration, and under its use there is rapid healing. He did not believe in primary tubercular disease of the larynx. In all the cases that he had seen there had been more or less disease of the lungs. In true miliary tuberculosis of the larynx he had always found some evidence of the disease in the lung, and these cases he thought never recovered. He had seen cases of catarrhal ulceration of the larynx.

DR. S. SOLIS-COHEN, of Philadelphia, read a paper on

THE OCCASIONAL TOPICAL USE OF SOLUTIONS OF NITRATE OF SILVER IN THE TREATMENT OF CHRONIC LARYNGITIS.

The cases reported were not due to nasal disease or obstruction; nor were they those in which all topical treatment is unnecessary. Where indigestion, constitutional disease, or diathesis have been present these have received due attention. It was simply of topical applications for the relief of local conditions that he spoke. All have encountered cases of chronic laryngitis, especially in singers, clergymen, lawyers, etc, in which, after all discoverable sources of irritation, local or general, have been removed, and approved topical treatment suited to the individual case has been faithfully tried for a longer or shorter time, improvement takes place to a certain point and then stops. Perhaps all visible evidences of disease, except an irregular, pinkish striping of the vocal bands have disappeared, or perhaps there would be a faint uniform coloration, or may be only a loss of lustre; but something there would be that persisted and that prevented the patient from resuming with comfort full use of the voice in singing or speaking, or perhaps even in ordinary conversation.

It is in such conditions as these—the last obstinate remnants of the disease—that he derived considerable satisfaction from the topical use, by sponge, cotton wad, or brush, of weak solutions of silver nitrate, about ten grains to the ounce, applications being made every day for some two or three days until some congestive reaction is produced; after that at longer intervals. In the course of treatment, too, in some cases before reaching the last stage above described, he had found recovery apparently hastened by occasionally substituting stronger solutions of silver nitrate, forty to sixty grains to the ounce, for the iodized glycerine, tannin, tar, or other routine application. A visible increase in congestion immediately follows the use of the silver solution; but this passes off quickly, and at the next visit great improvement is usually manifested. These applications

are made once in about two or three weeks, according to circumstances.

DR. C. E. BEAN, of St. Paul, described two cases of

TUBERCULOSIS OF THE TONGUE,

one in a male and the other in a female. In both the disease had made extensive progress when they came under observation, and no operative measures seemed warrantable. In both there was well-marked involvement of the lungs. Death occurred in both cases a short time later. Attention was called to the differential diagnosis between tuberculosis, carcinoma, and syphilis. Carcinoma is to be excluded by the absence of granular enlargement and by the lancinating pains peculiar to that disease. The question of syphilis can only be determined by the history and by the effect of anti-syphilitic remedies.

DR. J. C. MULHALL then read a paper on

THE LOCAL TREATMENT OF DIPHTHERIA.

The method of treatment which he suggested was based upon the following considerations: 1. That diphtheria is a germ disease. 2. That the specific microbe in the majority of cases selects the tonsils. 3. That unless checked by treatment the colonization of these germs results in local putrefactive changes with subsequent involvement of the general system. 4. That implication of the larynx or of the nasal passages increases the mortality. 5. That the disease is acutely adynamic. It had occurred to him that in this disease it would be better to wash out the throat than to spray it. This is accomplished by means of an ordinary syringe, and in this way the throat can be washed out without difficulty. The patient should be kept in the recumbent position, the head being brought to the edge of the bed. This procedure is repeated every hour during the day and at no time is a longer period than three hours allowed to elapse. The only solution that he has used has been carbolic acid with compound solution of iodine. The water is frequently saturated with boracic acid.

The post-nasal space requires careful attention. In every case of diphtheria the nasal cavities should be kept sterile from the first. When it is certain that the nasal cavities are not affected the insufflation of a non-irritating, antiseptic powder may be sufficient. Where there is uncertainty or where it is certain that infection has taken place, the nasal cavities are to be washed out with a weaker solution of the same kind, not more than a teaspoonful for each nostril. For this purpose he recommended a small glass syringe with a bulbous extremity to prevent injury to the nose. After cleansing he frequently resorts to solvents, and has obtained the best results with papoid. In laryngeal diphtheria inhalation is the only practicable method. The inhalation of the vapor from slaking lime should not be forgotten. In several cases of laryngeal diphtheria he had obtained good results by placing the patient in a small room which had been fumigated with sulphur, and by keeping water to which had been added pine-tar and turpentine constantly at the boiling-point.

DR. W. C. GLASGOW believed that diphtheria is a blood disease rather than a local affection, and that the only objects in local treatment are cleanliness, disinfection, and loosening of the membranes. One remedy which he had used with advantage was the peroxide of hydrogen in spray. It seems to act by lifting up the membrane by the formation of gas. He considered the constitutional treatment as the most important, and he thought the bichloride of mercury and benzoate of soda were the most successful remedies. With these he uses very simple local treatment. In cases of severe local manifestations the method described by Dr. Mulhall would be valuable.

DR. D. BRYSON DELAVAN referred to the value of the bichloride of mercury and cyanide of mercury, which he had used for ten years in the treatment of diphtheria.

DR. W. H. DAILY had on previous occasions recommended the use of calomel in the treatment of this affection, and he thought it was as efficient as a local agent as it was active as a constitutional remedy. He believed that calomel in large and frequently repeated doses—two, three, four, or five grains to children one to two years of age—exerted a valuable therapeutic effect. He thought that a large part of the effect was from the local action upon the diphtheritic poison.

DR. HARRISON ALLEN referred to the value of trypsin as a solvent for the diphtheritic membrane.

DR. F. WHITEHILL HINKEL, of Buffalo, then read a paper on

SOME MANIFESTATIONS OF LITHÆMIA IN THE UPPER AIR-PASSAGES.

The influence of lithæmia and allied conditions upon the upper air-passages has received little attention in laryngology, as is shown by the scanty literature extant upon the subject. There is a distinction to be made between distinctly gouty sore throat and that due to lithæmia or some allied condition. The subjects of the latter may never have attacks of true gout, nor irregular manifestations of it; indeed, as a rule, they are not so affected. The term lithæmia is elastic in its application to cases varying from extreme digestive and nervous disturbance to almost normal health; consequently its manifestations in the upper air-passages are not sharply distinguished, nor are they typical or pathognomonic. One of the most characteristic manifestations is a patchy or striated irregular congestion of the mucous membrane of the larynx and pharynx. In the former case a dry explosive cough accompanies, in the latter uneasiness or positive pain is referred to the side of the throat, occasionally extending to the ears. These cases are notably irritated and made worse by stimulant applications. Local sedatives and general antilithic treatment give the best results. Occasionally acute naso-pharyngeal catarrh is a manifestation of an exacerbation of the lithæmic tendency. Alkaline and diluent medication with proper diet give more relief than local treatment. Obstinate relaxation of the venous plexuses of the turbinated bodies in some individuals appears associated with lithiasis. Such cases stand operative—caustic—applications badly, and receive little or no benefit from them. Some of these cases are much improved by antilithics and general hygiene. Others are intractable on account of uncontrollable lithæmic tendencies.

At the executive session the following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—J. N. Mackenzie, M.D., of Baltimore.

Vice-Presidents.—Edgar Holden, M.D., of Newark, and C. E. Bean, M.D., of St. Paul.

Secretary and Treasurer.—C. H. Knight, M.D., of New York.

Librarian.—T. R. French, M.D., of Brooklyn.

Council.—Franklin H. Hooper, M.D., of Boston; George M. Lefferts, M.D., of New York; Frederick I. Knight, M.D., of Boston; D. Bryson Delavan, M.D., of New York.

Representative on the Committee of the Congress of American Physicians and Surgeons.—Harrison Allen, M.D., of Philadelphia.

The following were elected *Members:* Wm. E. Casselberg, M.D., of Chicago; H. L. Swain, M.D., of New Haven.

The Association then adjourned to meet in Baltimore, the time to be determined by the Council.

CONGRESS OF THE GERMAN SOCIETY OF SURGERY.

Eighteenth Annual Session.

Held at Berlin April 24th to 27th, 1889.

(Specially reported for THE MEDICAL NEWS.)

(Continued from page 615.)

DR. OPPENHEIM, of Berlin, made some remarks

ON TRAUMATIC NEUROSIS.

Frequently after a very severe traumatism, patients who have been treated by a surgeon are obliged to go to a physician, for the reason that, after their injury, a traumatic neurosis has developed itself. These post-traumatic neuroses are very interesting to physicians, but are no less important from a sociological point of view. When a workman sustains an injury during his occupation, his employer owes him compensation for his treatment, but if, after the wound or injury has been cured, a traumatic neurosis arises, who is to be responsible, the workman or the employer? To be able to determine in such cases who is to pay the damages, we must know in what these neuroses consist, whether they are the result of the traumatism, or, on the contrary, are the manifestations of an anterior nervous state which reveals itself on the occasion of the injury. In the first case, the employer would really be responsible, while in he second it would be the workman. Before settling the question of the nature or cause of these traumatic neuroses, a careful study of cases is necessary.

1st. A railroad employé was struck on the left shoulder by a wagon. A very large ecchymosis appeared in the shoulder and clavicular region. A few days later, paralytic symptoms appeared. The left arm was slightly cyanosed, and the back of the hand was œdematous. The arm could not be raised, sensibility was lost in the left hand and weakened in the left half of the body. The conjunctiva and cornea of this side were insensible, the visual field was very much shortened, taste and smell were diminished on the same side. There was a paresis of the left lower extremity. The tendon reflexes were somewhat more pronounced than normal; electrical excitability was diminished in the left arm. The patient also presented certain psychical symptoms.

2d. A railroad employé was caught between two cars and sustained an injury of the right shoulder. Later, the right arm became contracted, the elbow flexed, and the fingers assumed the position of holding a pen; when the patient tries to extend them they show a marked trembling. The patient feels severe pain in the shoulder, which becomes exaggerated when the arm is to be moved. There is no reaction of degeneration, sensation is completely abolished in the hand and diminished on the right side. Anæsthesia also involves the organs of sense; there is a shortening of the visual field on the right side. The right inferior extremity is in a state of paresis, but the patellar reflex is exaggerated. The intellectual powers are also depressed. The tongue is deviated to the right, and more so than in ordinary hemiplegia.

3d. A man received in 1886 a series of shocks in the sacral region from a moving pendulum. Later the patient complained of severe pain in this region, followed by a persistent trembling of the whole body, which trembling is exaggerated by movements. He maintains with difficulty his trunk in position when he wants to pick up an object, for example; the inferior extremities are, at the same time, stiff and feeble. In this case, as a result of a localized traumatism, there has been produced a general nervous disease; words are expressed in a trembling voice, syllables are spaced in a peculiar manner which has not yet been noted in nervous diseases. The pulse is rapid; 90 in repose, but goes up to 140 when the patient moves. This acceleration of the pulse is very important. There is in this patient an analgesia of the skin covering the cranium, which extends even to the eyebrows. This patient is very much agitated, very irritable, and cannot sleep.

4th. A patient was injured on the head by the falling in of a cave; the immediate injury sustained was easily cured; but later, nervous phenomena presented themselves. The patient suffers from interference in his speech and in his walking; he has vertigo; presents Romberg's sign. He stammers. His walk presents characteristic signs; the patient easily advances the right foot, which then falls, striking the ground; to bring the left foot in front of the other, instead of making an ordinary step, he is obliged to take a great many short steps.

5th. An engineer fell, in 1885, from a locomotive, and was unconscious for some time after the fall, and then remained for several months in a bad cerebral condition. Then occurred a right pleurisy. To-day, the patient presents all the symptoms of a generalized neurosis. He is excited, troubled, and has continuous nervous palpitations; pressure on the right side of the thorax brings on violent pains. The patient complains of confused ideas and intellectual weakness.

Formerly, to explain such facts, an organic lesion of the nerve centre, due to the traumatism itself, was suspected. But, as a demonstration of these hypothetical material lesions could not be given, certain authors thought that the patients were only simulating, so as to be able to profit by their accident. To-day, our methods of diagnosis allow us to expose the simulators, and we must admit that a traumatism can develop a neurosis without organic lesions, and analogous, for example, to hysteria. But is this neurosis hysteria itself, or is it a special neurosis? To know it, we must compare traumatic with hysterical neuroses, and see whether we can find characters which allow us to establish a differential diagnosis.

He thought that there are signs distinctive of these two neuroses. Traumatic neuroses are accompanied by psychical phenomena which are not found in hysteria.

In cases of traumatic neurosis, traumatisms which have occurred in one region of the body can determine nervous symptoms on the opposite side. Traumatisms of the sacral region not only determine paraplegic phenomena, but these symptoms may extend further up, and may become generalized in the whole nervous system. Likewise, an accident which occurs on one extremity can produce a general neurosis. These neuroses never give rise to the reaction of degeneration. They can be produced as a consequence of muscular atrophy with diminution of the electric hyper-excitability, but these symptoms are generally not much developed. The prognosis of these traumatic neuroses is sometimes difficult to express; it must always be reserved, and is more often unfavorable than favorable.

DR. LANDERER, of Leipzig, read a paper

ON THE DRY DRESSING OF WOUNDS.

He now very seldom uses any antiseptic agents; following Sänger's rule, all his instruments are first thoroughly boiled in water; he then places them in a plate containing a two per cent. carbolic acid solution. In private practice, and especially in country practice, it is not easy to procure antiseptic agents.

He uses during the operation the 1 to 1000 sublimated gauze, and after the operation is completed the wound is packed with the same, and so heals by first intention. He had a record of over ninety large and small operations without any failure.

DR. BRAMANN, of Berlin, then made some remarks on

SYMMETRICAL GANGRENE OF THE EXTREMITIES,

and presented three brothers, seven, nine, and thirteen years old respectively, all suffering from symmetrical gangrene of the extremities, a disease known by the description given by Raynaud in 1862. In the beginning these patients suffered from local syncope and local asphyxias. The ears and hands are anæmic and chlorotic; no hereditary antecedents; no arterio-sclerosis. The youngest was seen in his fourth year; his thumb became tumefied and the nail fell off. The oldest has lost a phalanx of the index of the left hand. The nails of the toes are very curved, and he has lost two phalanges of one of his toes. The third one suffers from anæsthesia of the whole arm and presents an ulcer on the plantar region of the foot. In all these patients sensation is abolished in the fingers and diminished in the lower extremities. He thought that this disease is attributable to a disease of the spinal cord.

DR. KOENIG, of Göttingen, had observed in a patient, after typhoid fever, symmetrical gangrenous plaques on both hands and on the sternum.

DR. BRAMANN said that after acute diseases, such as typhoid fever and other diseases of the same kind, we are liable to observe acute gangrene. This disease cannot be confounded with symmetrical leprosy, because of the lack of symmetry of anæsthetic leprosy, which, moreover, presents an anæsthesia in plaques.

DR. FISHER said that, in his opinion, symmetrical gangrene was a trophic disorder, for it is found in wounds of mixed nerves.

M. SOCIN, of Bâle, thought that in the majority of cases we have to deal with a nervous affection; yet symmetrical gangrene can be produced by other causes—for instance, he had observed it in an anæmic child of four months; in two days the gangrene had become so extensive that he was compelled to amputate both feet and both forearms. The child is now doing very well. In this case he attributed the symmetrical gangrene to thrombosis following endocarditis.

DR. THIERSCH had in his clinic a similar case; all the ten fingers were anæsthetic, and he had also two patients suffering from syringomyelia who presented certain phenomena of symmetrical gangrene of the extremities.

PROF. WAGNER had observed a symmetrical gangrene on the back of a man, aged thirty-five; the disease when it began had all the appearance of zona.

DR. HANAU, of Zurich, then read a paper

ON THE INOCULATION OF CARCINOMA IN ANIMALS.

Although carcinoma is a tumor which produces metastasis, it has always been impossible up to now to inoculate it from man to animal, or from one animal to another. There has been an attempt to transport carcinoma from a dog to another dog, and even to rabbits or guinea-pigs; but these experiments have given us no results. He had succeeded in inoculating carcinoma from a rat which was suffering from papillary cancroid to two other animals of the same species. These two rats had been inoculated in the tunica vaginalis of the scrotum, which in these animals communicates with the peritoneum. At the end of seven weeks one of the rats died of carcinoma. The whole epiploon was covered with nodosities, some of the size of a pea, the others much smaller. The axillary and inguinal glands were involved. These tumors, examined microscopically, presented the same type as the inoculated carcinoma. The post-mortem examination of the second rat was made in the presence of Prof. Koch; this animal also presented the same alterations.

DR. RINNE, of Greifswald, had inoculated a carcinoma of the rectum in a dog to five other dogs. These inoculations were made in the subcutaneous and muscular tissues, and into the peritoneum, but he had obtained no cancerous transmission.

PROF. HEIDENHAIN spoke of an experiment in which the inoculation of cancerous fragments produced a cancerous alteration in the neighboring ganglions.

DR. HAHN, of Berlin, said that two years ago he transplanted in a patient, suffering from incurable cancer, a carcinomatous nodosity to a healthy part. This nodosity developed and was surrounded by new nodosities, which acquired three or four times the dimension of the primary nodule. The histological examination of these nodosities showed that they were carcinomatous.

DR. HANAU said that in a thesis by a Russian physician, M. von Norvinski, on the transplantation of cancer, experiments were reported on forty-two dogs, two of which proved successful; he, however, did not think it necessary to mention them, as several competent authors have considered those results as being questionable. It is possible that Norvinski had experimented on young animals, while he inoculated old ones.

DR. MEHR, of Lemberg, presented a dog which died from carcinoma as a result of inoculation made with cancer of human origin. The peritoneal cavity was filled with tumors from the size of a nut to that of an apple; the lymphatic glands were all involved, and the spleen presented a few nodosities. Also two other dogs, which

he inoculated on the 16th of February. They have on the abdominal parietes nodosities of a large size, and easily made out by palpation.

DR. F. KRAUSE, of Halle, then spoke of the

AFTER-RESULTS OF THE ABLATION OF CANCERS OF THE TONGUE.

In Volkmann's clinic, 91 carcinomas of the tongue have been removed during the past fourteen years; 35 of these were operated by sawing laterally through the inferior maxillary, according to Langenback's method; 56 have been operated upon without resection of the inferior maxillary. In this process the maxillæ are separated one from the other by a very strong stretcher. The epiglottis protecting the entrance to the larynx, one need not fear the obstruction of the trachea by blood. The lingual artery is cut between two hemostatic forceps; as to the other vessels they are cut and ligated one after the other, just as they present. Of the 35 operated upon in whom the ganglia were involved, 6 disappeared; 1 died from the disease; 3 have recurred at the end of three years; 2 have remained cured for the past six years.

DR. HAHN observed that an error of diagnosis in cancer of the tongue is not of unusual occurrence.

PROF. KÜSTER, of Berlin, said that two years ago he operated upon an ulcerated tumor of the tongue which he had taken for carcinoma; but the histological examination not confirming his diagnosis, he prescribed a treatment by iodide of potassium, thinking he might have to deal with syphilis, especially as he felt an enlarged gland in the region of the neck. As the gland did not disappear, he decided to remove it, and on microscopical examination it proved to be cancerous. This patient died two months later from generalized carcinoma.

DR. SCHEDE, of Hamburg, had operated on a patient for carcinoma of the tongue. The first time he took away the left side, the right side being healthy. In 1884 the right side also became diseased; he extirpated it, and the patient has remained well up to date. He had operated upon two other carcinomas of the tongue which were not followed by a return of the trouble; one was a cancroid.

PROF. VON ESMARCH said he operated twenty years ago on a patient in whom he removed the whole tongue; the disease never returned.

PROF. KÜSTER, of Berlin, presented a case of carcinoma of the tongue upon which he operated in 1879, and which has not returned since; the patient is able to speak quite distinctly. Out of 26 cases operated upon, 2 died as a result of the operation, and 3 remained without a recurrence for over three years.

Two years ago he operated upon a carcinoma of the tongue, which presented several recurrences; he operated five times on the same patient, who to-day seems to be cured. If the disease returns, its repeated removal will always prolong the life of the patient. In another case of carcinoma, which had been operated upon eighteen months previously, by Professor von Bergmann, he completely extirpated the organ as well as the diseased glands as far as the jugular region.

PROF. VON BERGMANN, of Berlin, presented two patients; one was a case who was operated upon two years previously, and the other four years before; the disease has not yet returned.

PROF. KRAUSE then spoke of the

AFTER-RESULTS OF EXTIRPATION OF CANCER OF THE RECTUM.

He presented three patients who had been operated upon for carcinoma of the rectum, six, eight, and nine years ago respectively. The disease has not yet returned in any of them. In von Volkmann's clinic he found four cases who have not recurred, and who had been operated on in 1881, 1883, 1884, 1885; in all, seven cases probably cured in a permanent manner out of seventeen patients. In the three subjects whom he presented, the peritoneal cavity was opened very freely, and in each the sphincter ani had been removed; the patients can no longer retain liquid feces, but only solid.

PROF. KÜSTER presented a patient upon whom he operated for carcinoma of the rectum by Kraske's method, with a splendid result as regards the preservation of the function of the sphincter.

PROF. VON BERGMANN presented a case of rectal carcinoma, operation by the "high amputation" four years ago, who has not yet shown any signs of returning disease.

RESULTS OF EXTIRPATIONS OF CANCER IN DIFFERENT REGIONS.

PROF. VON BERGMANN then presented several cases, amongst which was one of carcinoma of the pharynx operated upon in 1884; three months later the disease returned; all the glands were then removed, and the patient has shown no sign of the disease since the last operation. Another case was of carcinoma of the face which has remained cured for four years; and finally, two cases of carcinoma of the lips, operated upon two years ago, in which the disease has not yet returned.

DR. HAHN, of Berlin, presented a patient who had been operated upon for carcinoma of the larynx eight and a half years ago, but the disease has returned during the past two months.

PROF. VON BERGMANN presented a patient upon whom he operated for carcinoma of the larynx, removing one-half of the organ, four years and a half ago; no recurrence has taken place. The voice is slightly altered; the patient does not wear an artificial larynx.

As a parallel to this case, he presented a patient of Dr. Schmidt, from Frankfort-on-Main, who was operated upon three years ago, the entire larynx having been removed, and yet all are able to understand his speech.

DR. ROERTÉ, of Berlin, presented a case of carcinoma of the larynx operated upon two and a half years ago; the disease has not yet returned.

PROF. B. FRAENKEL, of Berlin, operated, in 1886, on a patient for carcinoma of the larynx, by the bucco-laryngeal method; the patient is well.

DR. SCHMID, of Stettin, presented a patient operated upon two years and a half ago, the entire larynx having been removed. No return up to date, and the patient is able to speak without an artificial larynx. He respires by a canula; in this patient the trachea is completely separated from the bucco-pharyngeal cavity. The preservation of the voice can only be explained by great narrowing of the pharynx, due to a contraction of the muscles, aided by large tonsils.

DR. SCHINZINGER, of Freiburg, had operated on eighty-six cases of cancer of the breast; twenty-six of them recurred in from one and a half to two years. He asked the question, whether one could not obtain an atrophy of the gland by castration.

PROF. HELFERICH, of Greifswald, then read a paper

ON PARTIAL RESECTION OF THE SYMPHYSIS PUBIS,

and presented a patient operated upon five years ago for carcinoma of the upper portion of the bladder. The tumor was adherent to the upper border of the symphysis pubis, and compelled him to resect a part of this articulation so as to be able to remove the tumor. After having extirpated the cancer, the borders of the wound of the bladder were refreshened before uniting them again.

PROF. MOSLER, of Greifswald, then presented a patient suffering from

MYXŒDEMA.

All internal treatment had been tried to ameliorate the disease, but without any result. There was no family history as to this particular disease the mother was epileptic. Her children died very young from meningitis; she has never had syphilis; as regards etiology, it was only found that the patient caught cold in taking a foot-bath. She experiences a well-marked interference in her speech, as well as in her movements; pain on pressure; the eyes are puffed up and the patient can hardly open them; the lips are tumefied; no physical lesions apparently of the heart or lungs. The blood contains white blood-corpuscles in excess; urine normal. A fragment of skin examined by Professor Grawitz gave negative result from a bacteriological point of view, as well as regards the alteration of the tissues.

PROF. HORSLEY presented a preparation of myxœdema; the patient died of an intercurrent disease. The thyroid body was small and presented numerous tracts of connective tissue. The subject died in the first phases of the disease, but if it were a case of death by myxœdema, the whole thyroid body would have been transformed into connective tissue.

DR. RINNE observed a very marked case of myxœdema, and thought that this disease can be well placed by the side of acromegalia or cretinism. As to the disease itself, it remains an enigma both as regards etiology and therapeutics.

DR. THIERSCH read a paper on

EXTIRPATION OF NERVES.

It is well known how difficult an operation it is to remove certain nerves, and especially the trigeminus. To obviate these difficulties he has had special forceps made, which allow the twisting of the nerve on its axis before tearing it away. For the past five or six years he has applied this process twenty-eight times on seventeen patients. In five cases the supra-orbital nerve was the one involved, eleven times the infra-orbital nerve, three times the lingual nerve, four times the submaxillary, once the labial and auricular nerves.

PROF. HORSLEY had resected the trigeminus fifteen times for neuralgia, and in one-third of his patients he had had a complete success. In those in whom the disease has recurred he has cut the nerve on a level with the foramen rotundum and foramen ovale. Once he tried to extirpate the Gasserian ganglion, but he had to give the operation up on account of the large hemorrhage. He thought, however, that most of these affections are of peripheral origin.

DR. THIERSCH had also practised resection of the fifth nerve at the foramen rotundum and foramen ovale after trepanation, but it is a most difficult operation, attended by great danger. He had also tried to extirpate the Gasserian ganglion, but had not succeeded, as a part of this ganglion is strongly adherent to the dura mater. He agreed with Mr. Horsley that these affections are of peripheral origin, yet he had observed a few that were certainly central.

DR. SENDLER, of Magdeburg, then presented a woman suffering from

CAVERNOUS ANGIOMA OF THE MAMMARY GLAND,

with a short pedicle. It is a polylobed tumor, divided into two halves by a deep fissure covered with normal skin. It greatly increases in size during menstruation. This case is an interesting one, on account of the unusual seat of the tumor; in fact, Virchow's *Archiv* and Billroth's compendium contain no example of it.

PROF. KRAUSE then read a paper on

RESECTION OF THE HIP-JOINT.

Out of three hundred and seven resections made at Prof. von Volkmann's clinic, two hundred and seventy were performed for caries, according to Langenbeck's method. The plaster dressing is abandoned, compression is employed, and an extension apparatus made with bands of adhesive plaster, which go as far up as the Fallopian ligament. Counter-extension is produced by the sinking of the pelvis into the bed. In severe cases only is counter-extension by weight necessary, when there exists a notable shortening; weights of twelve to twenty-five pounds are employed, according to the age or gravity of the case. Extension must be continued for years, even after the cure and straightening of the limb, by means of von Volkmann's stringed stocking, which is to be applied at night only.

Partial movements must be encouraged very early, and the patient may be allowed to get up at the end of three to four weeks; high heels are not employed, but in grave cases an orthopedic apparatus which maintains the limb in a state of abduction is prescribed. He showed a boy of fourteen years on whom he had operated; the head of the femur was necrosed and detached from the body of the bone; there existed a shortening of six and a half inches; there is now a complete correction, and the articular movements are nearly normal. The patient wears continuously the apparatus mentioned.

(To to continued.)

CORRESPONDENCE.

THE CULTIVATION OF ANAEROBIC BACTERIA.

To the Editor of THE MEDICAL NEWS,

SIR: In the course of investigations it happens not infrequently that investigators, pressed by the same needs, will hit upon practically the same method independently of each other. Permit me to call attention, somewhat

tardily, to such a coincidence. In your issue of March 30th, p. 347, Dr. Jeffries describes a new method of making cultures of anaërobic bacteria by filling the culture tube with mercury and inverting it over a reservoir of mercury. He thus drives out the air, and any gases that may be formed are retained. Dr. Escherich (*Die Darmbakterien des Säuglings*, p. 122), as long ago as 1886, made use of the same device and for the same purposes, with the exception only that liquid media of varying chemical composition were employed.

He sterilizes the mercury, with it fills a strong sterile test-tube, inverts it over a beaker containing sterilized mercury, and then transfers, by means of a curved pipette, the culture medium which has been previously inoculated with the desired microbe. The liquid, of course, rises to supplant the mercury in the test-tube. Some of the culture liquid is retained in the original flask as an aërobic control culture. The purity of the culture was always tested by removing, with a suitably curved pipette, some of the liquid and submitting it to a microscopic examination, or else by testing on gelatine after the experiment was completed. The author claims that contamination of the culture was very rare. The writer has not tried this method, but uses to determine the formation of gases in liquid media a simple device, which will be described at an early date.

THEOBALD SMITH.

WASHINGTON, D. C., May 31, 1889.

NEWS ITEMS.

American Climatological Association.—The Sixth Annual Meeting of this Association will be held in the Boston Medical Library Association Hall, Boston, on Monday and Tuesday, June 24 and 25, under the presidency of Dr. V. Y. Bowditch, of Boston.

The following papers are announced to be read:

"Comparative results in ninety cases of Pleurisy, with special reference to the development of Phthisis Pulmonalis." By Dr. V. Y. Bowditch, Boston.

"A Study of the Summer Climate of the Massachusetts Coast." By Dr. William D. Hodges, Boston.

"Reports of Cases of Acute Miliary Tuberculosis." By Dr. John C. Munro, Boston.

"The Mortality of Acute Lobar Pneumonia." By Drs. C. W. Townshend and A. Coolidge, Jr., Boston.

"Consumption as I have known it." By Dr. E. P. Hurd, Newburyport.

"The Influence of Climate and Season upon Normal and Abnormal Manifestations of Nervous Activity." By Dr. Walter Platt, Baltimore.

"The Basis of Rational Climato-therapy." By Dr. Griffith E. Abbott, Bryn Mawr, Pa.

"Ocean Therapy." By Dr. Albert L. Gihon, Surgeon, U. S. N.

"The Vital Statistics of Two Thousand Persons in an Ocean Atmosphere." By Dr. A. N. Bell, New York.

"The Psychological Factor in selecting a Climate for Invalids." By Dr. E. O. Otis, Boston.

"The Wakefulness of Neurasthenia as affected by a Residence at the Seaside." By Dr. W. H. Daly, Pittsburg, Pa.

"The Relations of Sandy Soil and Pine Forests to Pulmonary Phthisis, with special reference to the Pine Belt of New Jersey." By Dr. Isaac H. Platt, Lakewood, N. J.

"Open-air Travel as a Cure and Preventive of Consumption, as illustrated in the History of a New England Family." By Dr. Henry I. Bowditch, Boston.

"Rest and Exercise in Diseases of the Heart." By Dr. A. L. Loomis, New York.

Discussion—"Hemoptysis from Chronic Pulmonary Disease"—

a. Pathology. By Dr. G. M. Garland, Boston.

b. Clinical Significance. By Dr. J. T. Whittaker, Cincinnati.

c. Climatology from standpoints of Etiology and Therapeusis. By Dr. R. G. Curtin, Philadelphia.

d. Other Treatment. By Dr. J. B. Walker, Philadelphia.

"Remarks on the Treatment of Pulmonary Phthisis." By Dr. J. C. Wilson, Philadelphia.

"Some Observations on the Causation and Treatment of Asthma." By Dr. Beverley Robinson, New York.

"The Climatic Treatment of Bronchial Asthma." By Dr. F. I. Knight, Boston.

"Institution for the Treatment of Pulmonary Consumption." By Dr. P. H. Kretzschmar, Brooklyn.

"The Mineral Springs of Colorado." By Dr. Charles Dennison, Colorado.

"The Climate of New Mexico." By Dr. R. M. Longwell, Santa Fé.

"Notes on the Prevalence of Diphtheria at High Altitudes." By Dr. S. H. Chapman, New Haven.

"An Unusual Type of Pulmonary Disease occurring in the Central Mississippi Valley." By Dr. W. C. Glasgow, St. Louis.

Medico-Chirurgical College of Philadelphia.—The following changes have been made in the Faculty:

Frank Woodbury, A.M., M.D., Honorary Professor of Clinical Medicine.

William B. Atkinson, A.M., M.D., Honorary Professor of Sanitary Science and Pædiatrics.

John V. Shoemaker, A.M., M.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine.

James M. Anders, Ph.D., M.D., Professor of Hygiene and Clinical Diseases of Children.

The New Quarantine Station at the Entrance to Delaware Bay.—It will be remembered that Congress at its last session appropriated a considerable amount of money for the equipment of seven quarantine stations, five for the Atlantic Coast, and two for the Pacific. Of this appropriation, about $75,000 were assigned for the establishment of a thoroughly equipped station for the protection of the Delaware Bay and River. Heretofore the only safeguard against the introduction of contagion below the Lazaretto has been the little hospital of the United States Marine-Hospital Service, near Lewes, simply designed for the treatment of sick or wounded seamen, with no adequate provision for the isolation of those suffering from infectious diseases. So well has this service been administered, however, that it has, on several occasions, detained and disinfected pest-laden vessels and their crews, and thus stayed at the threshold causes which might have resulted in disastrous epidemics had they gained admission. At or near this point the Legislature

of Delaware has offered to cede to the United States the land necessary for the proposed buildings and appurtenances. The Secretary of the State Board of Health of Pennsylvania, Dr. Benjamin Lee, has been designated a Commissioner on the part of the United States to meet Commissioners appointed by the State of Delaware, and in conjunction with them to locate and fix the boundaries of this Reservation. This preliminary will be speedily settled, and work will be begun at an early date. The fumigating steamer for the station is now in process of construction at the Pusey & Jones Company's extensive works at Wilmington, Delaware.

New Appointments in the Berlin Health Office.—Dr. Petri, hitherto Keeper of the Hygienic Museum, has been appointed Chief of the Bacteriological Department in the Imperial Office of Health in Berlin. His successor is Dr. Erwin von Esmarch, son of the distinguished professor and surgeon at Kiel. Both of these men are worthy and successful laborers in the vineyard of which Koch is the chief tiller.—*The Lancet*, May 25, 1889.

Medical Congresses during the Paris Exposition.—Sixty-nine congresses will be held in Paris during the Exhibition. The following are those which will be of special interest to physicians:

Congress for the Study of Questions relative to Alcoholism, from July 29 to July 31.

Congress of Public Assistance, from July 28 to August 4.

Congress of Chemistry, from July 29 to August 3.

Congress of Therapeutics, from August 1 to 5.

Congress of Hygiene and Dermography, from August 4 to 11.

Congress for the Amelioration of the Condition of the Blind, August 5 to 8.

Congress of Dermatology and Syphilography, August 5 to 10.

Congress of Mental Medicine, August 5 to 10.

Congress of Physiological Psychology, August 5 to 10.

Congress of Criminal Anthropology, August 10 to 17.

Congress of Prehistoric Anthropology and Archeology, August 19 to 26.

Congress of Dentistry, September 1 to 7.

Congress of Otology and Laryngology, September 16 to 21.

Congress of Veterinary Medicine, September 19 to 24.

Congress of Hydrology and Climatology, October 3 to 10.

Homœopathists Abroad.—The *British Medical Journal*, in quoting from the most recent official statistics in Austria, shows there are only 118. homœopathists out of the whole number of medical men, 7183, and that only 44 of these profess to practise homœopathy exclusively. There are none at all in the Italian districts, and only 19 in Vienna. The number, also, is said to be steadily decreasing.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 4 TO JUNE 10, 1889.

By direction of the Acting Secretary of War, JAMES C. MERRILL, *Captain and Assistant Surgeon*, is detailed as a member of the Board of Medical Officers appointed by Par. 9, S. O. 108, May 10, 1889, from this office, to meet at the U. S. Military Academy, West Point, New York, on June 1, 1889, or as soon thereafter as necessary, to examine candidates for admission to the Academy, etc., vice Frederick C. Ainsworth, Captain and Assistant Surgeon, hereby relieved as a member of the Board.—Par. 4, *S. O. 127, A. G. O.*, June 3, 1889.

OWEN, W. O., Jr., *Captain and Assistant Surgeon.*—The leave of absence for seven days, granted in Orders No. 18, *c, s*, Fort Gibson, Indian Territory, is extended twenty-three days.—Par. 2, *S. O. 67, Headquarters Department of the Missouri, Fort Leavenworth, Kansas*, May 29, 1889.

By direction of the Secretary of War, the leave of absence granted JEFFERSON R. KEAN, *First Lieutenant and Assistant Surgeon*, in S. O. No. 48, May 13, 1889, Department of the Platte, is extended fifteen days.—Par. 3, *S. O. 129, A. G. O.*, June 5, 1889.

WALES, PHILIP G.—Appointed Assistant Surgeon with rank of First Lieutenant, from June 7, 1889.

DE WITT, THEODORE F.—Appointed Assistant Surgeon, with rank of First Lieutenant, from June 7, 1889.

TEN EYCK, BENJAMIN L.—Appointed Assistant Surgeon, with rank of First Lieutenant, from June 7, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 8, 1889.

PAGE, J. J., *Assistant Surgeon* (Retired).—Granted one year's leave of absence, with permission to leave the United States.

BAILEY, THOMAS B.—Appointed an Assistant Surgeon in the Navy, May 23, 1889.

BARBER, GEORGE H.—Appointed an Assistant Surgeon in the Navy, May 23, 1889.

ROTHGANGER, GEORGE.—Appointed an Assistant Surgeon in the Navy, May 24, 1889.

SMITH, GEORGE TUCKER.—Appointed an Assistant Surgeon in the Navy, June 3, 1889.

BAILEY, T. B., *Assistant Surgeon.*—Ordered to the Receiving-ship "Dale," at Washington, D. C.

BARBER, GEORGE H., *Assistant Surgeon.*—Ordered to the Receiving ship "Vermont," at New York.

OGDEN, F. N., *Assistant Surgeon.*—Ordered to examination preliminary to promotion.

BRYANT, P. H., *Assistant Surgeon.*—Detached from the Naval Hospital, Chelsea, and granted a month's leave of absence.

MAYO, H. O., *Medical Director* (Retired).—Granted one year's leave of absence, with permission to leave the United States.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JUNE 8, 1889.

MEAD, F. W., *Passed Assistant Surgeon.*—Ordered to examination for promotion, May 31, 1889.

CARRINGTON, P. M., *Passed Assistant Surgeon.*—To proceed to Johnstown, Pa., on special duty, June 3, 1889.

MCINTOSH, W. P., *Passed Assistant Surgeon.*—When relieved at New Orleans, La., to proceed to San Francisco, Cal., for temporary duty, May 29, 1889.

SMITH, A. C., *Assistant Surgeon.*—Relieved from duty at Louisville, Ky.; ordered to Marine Hospital, New Orleans, La., May 29, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

673

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIV. SATURDAY, JUNE 22, 1889. NO. 25.

ORIGINAL LECTURES.

THE THERAPEUTIC VALUE OF ELECTRICITY IN GYNECOLOGY.

A Lecture, delivered by invitation, at the New York Polyclinic, May 21, 1889.

BY AUGUSTIN H. GOELET, M.D.,
OF NEW YORK.

GENTLEMEN: I am here to-day by invitation of our friend, Dr. A. M. Jacobus, to give you the benefit of my experience with electricity in gynecology. Of the three forms of electricity, I will confine my remarks to galvanism. It will, of course, be impossible for me to do more than give you a general outline of the principles involved and the methods of administration; but I will endeavor to make my remarks as practical as possible, in order that you may be able to make use of them in cases arising in your every-day practice.

We recognize in gynecology a distinct active and inactive pole; the active pole being that pole applied to the internal surface of the body, in the vagina, within the uterus, or into the tissues by puncture. It is from this pole that we expect our effect. The inactive pole is that pole applied to the external surface of the body, having for its object only the completion of the circuit. From this we expect no effect, and we get none, if we except the mild counter-irritation produced by the hyperæmia of the surface which occurs under the pad when strong currents are used. You will understand, then, that either the positive or the negative pole of the battery may be the active pole, according to your selection

It is very important for you to understand that the difference in the therapeutic action of the two poles is as great as the difference in their chemical action. You know, of course, that oxygen is generated at the positive pole, and hydrogen at the negative pole; that the positive pole attracts acids from the tissues, while the negative attracts alkalies. In a general way, the positive pole is known as the coagulating pole, while the negative is the liquefying or fluidifying pole. But there is a distinct polar and inter-polar action of the current, the polar action being that action which takes place at the point of contact of the active pole with the tissues, and the inter-polar action being the influence exerted by the current in its passage through the tissues, the greatest action being manifested in proximity to the active pole. These different actions may be more readily appreciated by you, and will be more convenient for you in every way, if they are put in tabular form, and for that reason I have had them written out on the black-board for your future guidance. The positive pole may, then, be divided into its inter-polar and polar action. In its inter-polar action it is *anodyne, sedative, anti-congestive, denutritive, anti-hemorrhagic* or *hæmostatic*, and *alterative*. It acts by contracting the capillaries, will drive out congestion, allay inflammation, and will relieve pain. In its polar or local action it is *styptic* with moderate intensities, and *caustic* and *hæmostatic* with high intensities. As I have said before, it is the coagulating pole, and it is, therefore, useful for arresting hemorrhage when applied intra-uterine. The negative pole in its inter-polar action is *stimulating, congestive, derivative*, and *alterative*, favoring absorption by increasing the blood-supply. In its polar action it is markedly *electrolytic, liquefying*, producing active chemical decomposition, and *caustic* with much lower intensities than the other pole. It is particularly useful in removing obstructions in the cervical canal with moderate intensities, having even with low intensities a decided electrolytic effect.

I have said that the negative pole is the caustic pole. It is, in fact, generally known as the more caustic pole, but it is so only when we refer to the bare or unprotected electrode used within the uterus. I have found that with the protected electrode used in the vagina the positive pole is the more caustic—that is, I have been able to use, in cases which were suitable for it, 200 milliampères with the negative pole in the vagina for five minutes without a caustic effect, whereas, with the positive pole it is impossible to use in the vagina 100 milliampères for the same length of time without producing active cauterization. When a current of that strength is used, I advise that the electrode be dipped in a solution of bicarbonate of soda, which will neutralize the acids that collect at the point of contact and prevent the usual caustic action. The different local actions of the poles may be modified or varied at the will of the operator, by increasing or diminishing the current, or by lengthening or shortening the duration of the application.

You have in electricity, as you will see, an agent capable of exerting a remedial influence over almost every form of disease of the pelvic organs, an agent possessing an infinite capacity for modification, according to the method of its application. In this respect it reminds me of a certain musical instrument, the cornet, which, though it has only three keys, may be made to produce any note at the will of the musician.

An intelligent interpretation of these different actions of the two poles of the battery, forms the basis of electrical treatment, and you must constantly bear them in mind. Experience will, of course, increase your ability for a proper selection of the pole to be used. Take my advice and do not attempt the application of electricity to diseases of the pelvic organs until you have thoroughly mastered the subject—until you are able to apply it with a definite object in view. Make up your mind accurately as to the condition present, and apply the remedy so as to meet the indication. In this way alone can the value of electricity be determined and its future usefulness be advanced, for failure from improper use, by those who do not understand it, is more likely to be attributed to the inefficiency of the agent than to inexperience in

manipulation. *Ignorance is the greatest enemy of progress.* And this especially applies to the use of electricity. If you will take the trouble to investigate the subject, you will find that the opponents of electricity are those who are utterly ignorant of its action and uses. Those who have pretended to investigate the subject with a view of determining its value, have done so under protest, knowing nothing about it, rather desiring its failure than its success, and, failing, they have damned the agent instead of themselves. See that your failures do not produce the same effect.

Now, the position of the electrodes is sometimes of great importance. When you desire the inter-polar influence of the current you must place your internal electrode and your external electrode in such relation to each other that the tissues under consideration or treatment will be immediately included between the two poles; that is to say, if you are treating the diseased condition of one side of the pelvis, place your vaginal electrode at the most accessible place on that side of the vagina, and your external electrode on that side of the abdomen, thus concentrating your current to one side rather than disperse it over the whole surface of the abdomen externally, for by this dispersion you would lose much of the current as well as the effect. In like manner, if it is more convenient to place the external electrode on the lower part of the spine the position must be such that the diseased structures will be included between the two poles. For electricity in passing from one pole to the other to complete the circuit will, as a rule, take the most direct route in spite of the resistance encountered. But when you desire only the local action of the active pole the position of the external electrode is a matter of indifference.

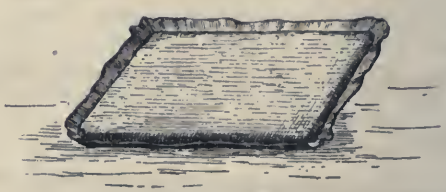
The intensity of the current to be used varies with the condition present and the object to be attained. This, with the duration and frequency of the applications, must be learned by clinical experience. It would be impossible to outline definitely here the intensity of the current and the duration of the application necessary in every case, but in studying each condition I will endeavor to indicate this to you clearly.

As to the meter, this is always a necessity to insure accuracy. Would you think of giving a dangerous drug without knowing accurately the dose you were administering? The meter is necessary not only to insure the safety of the patient, but in order that you may know certainly what you are accomplishing or what you are doing. Do not think that you can work without one, for it is a matter of too much importance. It is necessary, if for no other reason, to show that your battery is working properly, that your conducting cords are all right, and your electrodes in order, and above all, to show that the patient is not deceiving you as to her impressions.

In regard to the form of battery. In my experience the Leclanché apparatus gives the most steady and satisfactory current, but all of you may not be able to possess a cabinet battery of Leclanché cells, and if you select an acid battery, choose one with small elements. The batteries with large elements produce too furious an action—too caustic an action—besides being unpleasant to the patient in the increasing of the current cell by cell. The number of cells may be increased by means of the wince apparatus—that is, the keyboard is fitted with the wince or crank for increasing the current—for the plug and socket arrangement is too inconvenient for the operator and too unpleasant for the patient. Although they may have a double cord to prevent an interruption or break in the current, the patient still feels the increase of each cell more perceptibly than she does from a wince battery.

Of the apparatus for the administration of electricity I will begin by showing you the external electrode. So far as my experience goes the clay pad of Apostoli, with certain modifications, is the best which I have used. The objections that have been made to it, that it is unclean, unwieldy, and uncomfortable to the patient, may be readily overcome by these modifications which I have made. The large size usually recommended for these applications is by no means necessary, except when very high intensities are used, as in the puncture of fibroid tumors. Smaller sizes are more convenient and as readily acceptable to the patient. For instance, the size which I show you, six by eight inches, may be used with

FIG. 1.



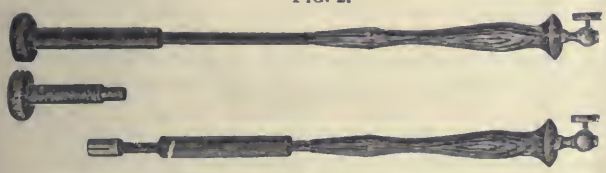
The external clay electrode, showing surface to be applied to the skin.

a hundred milliampères of current without producing any inconvenient or unpleasant action upon the skin, and even smaller sizes than this may be used for smaller currents. This is made of ordinary potter's or moulder's clay rolled out with a rolling-pin upon a flat surface after having been first mixed to the consistence of putty. It must be perfectly smooth and of a uniform thickness. In an electrode of this size it may be three-quarters of an inch thick. It is then cut into the desired size and shape and a metallic plate with binding-post attached pressed into the back of the pad—merely pressed into the clay, not imbedded. It is covered with a layer of absorbent cotton, taking care to have the binding-post penetrating this and the other layers. It is then sewed up in linen crash, the seam always being on the back of the electrode, so that the surface to be applied to the skin may have no unevenness and be perfectly smooth. Afterward it is backed with rubber cloth, which prevents wetting the clothing of the patient. The absorbent cotton, beside serving to keep the clay moist when not in use, forms a protection which prevents the clay from oozing through and soiling the surface to which it is applied. This may be kept warm in an ordinary pan over a small oil lamp and the unpleasantness of the ordinary cold clay pad avoided. For the sake of convenience I prefer in some of the pads to have the connecting post at the end, which allows it to be slipped up under the clothing and avoids the necessity of loosening the clothes. In applying electricity with a view to its inter-polar action it is often desirable that the size of the external electrode should be limited as much as possible, or as much as the sensation of the patient will allow without inconvenience, in order to concentrate its action.

The ordinary vaginal electrode I do not use at all, because it cannot be protected so as to prevent a caustic

action upon the mucous surface. This is on account of the size of the ball and the metal of which it is made. I use with the negative pole a flat metallic disk, a little smaller than the ordinary penny, and this I cover with potters' clay moulded round it. Then I cover it with a very thin layer of absorbent cotton, which, in its turn, is covered by absorbent gauze held in position with a rubber band round the shaft of the electrode. This is used with the negative pole only and is easily kept moist. I have been able to use with the negative pole from fifty to two hundred milliampères through the vagina with this electrode. It would not do to use this electrode with the positive pole because of the metal, which would be corroded by the acids after a few applications, perhaps after the first. I therefore use with the positive pole an electrode with a disk made of carbon, which is not affected by acids. But the connection with the metallic rod of the handle must be removed sufficiently far away from the disk to prevent corrosive action at the point of contact with the carbon, which would interfere eventually with the passage of the current. In

FIG. 2.



The carbon-tipped vaginal electrode.

this electrode the connection is at least an inch and a half or two inches away from the disk. The carbon tip consists of a disk with a spindle at least two inches in length. This I cover in the same way with potters' clay, absorbent cotton, and gauze, and it may then be used either with the positive or the negative pole. At the same time, however, it is intended more particularly for the positive pole. When it is to be used, an additional covering of absorbent cotton is placed upon it and moistened. After it has been used once this outer layer of cotton is removed and replaced by a fresh piece for the next application. But the carbon is such a good conductor of the current that you are apt to get more caustic action than you would from a metallic electrode of poorer conducting quality, and for this reason, with currents of more than fifty milliampères, I dip the electrode in a solution of bicarbonate of soda previous to its being used.

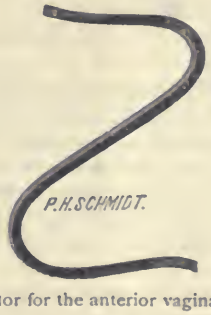
You will readily see that it would be very unpleasant to the patient to have introduced an electrode of this size into the vagina along the finger as a guide unless there was considerable relaxation of the vulva. It therefore became necessary for me to devise some instrument to facilitate the introduction of the electrode. Besides the inconvenience and unpleasantness to the patient of passing the electrode along the finger, the hand of the operator is soiled, and it becomes necessary for him to delay long enough to cleanse the hand if it is needed for turning on the current. The facility of introduction of intra-uterine electrodes is much enhanced by exposing the cervix to view, and is to be preferred to the method of introduction along the finger as a guide, both because it allows more delicate manipulation, and because it is safer for the patient. To overcome these difficulties I have devised the instrument which I show you. It is a modification of the Sims speculum. Of course, when your patients may be placed in the lateral position for applications, the Sims instrument would answer, but when the applications are to be made in the dorsal position the Sims speculum would be unsuitable, and the ordinary bivalve instruments in use do not permit sufficient expansion at the vulva to allow the introduction of this electrode without considerable inconvenience to the patient.

FIG. 3.

The speculum.

This instrument, as you see, consists of two Sims blades joined together by a very short shank and in opposite directions, forming the shape of the letter S. It may be used in either the dorsal or the lateral positions. When used in the lateral position in place of the Sims instrument, it is more readily held by the nurse as well as by the physician. It is more convenient for the physician if he is using it without a nurse than the Sims instrument. It is self-retaining without the support of the hand. In the dorsal position it may be used likewise without a nurse or without any assistance from a depressor unless there is unusual relaxation of the anterior vaginal wall, and, when this interferes with a view of the cervix, I use what I call an elevator of the anterior vaginal wall. It is made of hard rubber and

FIG. 4.



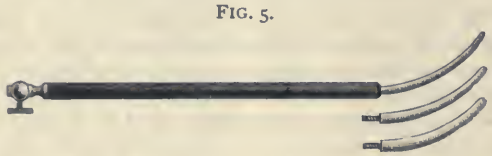
Elevator for the anterior vaginal wall.

curved in an S shape, so that it may fit over the pubis and be held with one finger of the nurse. If the physician is operating without the assistance of a nurse, all that is necessary for him to do is to ask the patient to hook her little finger into the upper curve of this elevator, and she can render him, with little or no inconvenience, all the assistance he requires. When used in

the dorsal position, the speculum is held by the physician in the left hand and the retraction of the perineum is done by him. In order to get this left hand out of the way I usually pass it between the right foot and buttock of the patient, and in that way hold the speculum. In my every-day practice I have come to rely upon this instrument, and use it in preference to the Sims. The advantages of a speculum of this construction are so numerous that, although I have always four or five of the Sims instruments on my table, I continually find myself turning to this for any work that I have in hand. It is now made of hard rubber as well as metal, to avoid the necessity of withdrawing it during the application.

For use with the negative pole almost any metal will be suitable for the electrode if the surface is kept clean and bright. Usually they are made of brass or copper, nickel plated. For use with the negative pole for applications to the cervical and uterine canal, I have devised an instrument which I prefer to the ordinary bulb electrode in general use for this position. It consists of three metal tips, their sizes being 13, 15, and 17 of the French scale. The tips are nearly two and a half inches long, of the usual curve, and are conical at the point. They screw into an insulated handle at a decided shoulder. I consider this shoulder very important, as, when we have penetrated the distance of this shoulder, we are certain that we have gone through the internal os and

FIG. 5.



Electrode for the application of negative galvanism to the cervical canal.

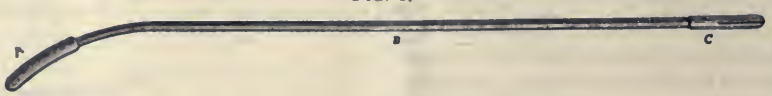
we need go no further. In this way we avoid the contact of the tip with the fundus of the uterus. I prefer this, I have said, to the ordinary bulb electrode because it is more easy of introduction and because the current is distributed over a greater surface and you do not get such intensified action at one spot. This is used with the negative pole for flexions and obstructions in the cervical canal. In applications of negative galvanism to the endometrium smaller tips may sometimes be necessary, but ordinarily the smallest sized tip answers every purpose.

In operating with the positive pole we must have a metal or substance which is not acted upon by acids, and platinum and carbon are the only substances heretofore used for this pole. Aluminum may be left out of the question, as it is too easily acted upon by high intensities with the positive pole. Platinum is very expensive, and carbon is absorbent, and for this reason cannot be rendered thoroughly aseptic. Beside, the carbon electrode must necessarily be straight. I have used for the past six months electrodes made of wrought iron and steel protected by a process of treatment which renders the metal absolutely non-corrosive and non-attackable by acids for a considerable length of time.

I show you here the tip (two and a half inches long) which I use, and have been using since January, and there is, as you see, very little action commencing upon the metal. Electrodes made of this material and treated by this process are so inexpensive that they may be thrown away when there is the slightest sign of corrosion upon them, but they will resist for a long time, and, besides, it is a better conductor of the current than platinum. This electrode, with a tip two and a half inches long, is intended for applications of positive galvanism to the entire uterine canal at once.

When it is desired to make the application only to the cavity of the uterus, it is necessary to have an electrode shorter than this, and for this purpose I have had an electrode made of the same material, three-quarters of an inch in length, which may be screwed into an insulated handle which is curved. This is fashioned after the Apostoli carbon electrode, and, besides the advantage of cleanliness, it is curved, and for that reason may be more easily introduced into the canal. It would be quite impossible to introduce the straight Apostoli carbon electrode into the canal in some cases, and very inconvenient to introduce it in all cases. It is more natural to have an instrument which is of the proper curve, and this can only be done by having a metallic tip upon a curved shaft. This tip should be of different sizes, 12 to 16 French, and the size should be selected with a view to the size of the uterine cavity. A tip should be used which would fit into the uterine cavity so as to be in contact with the whole surface to which it is applied; that is, it should not fit loosely into the uterus. For this reason different sizes are necessary. The tips are made three-quarters of an inch in length, so that the uterine cavity, exclusive of the cervical canal, may be cauterized in two sections. Passing it up to the fundus, it is left there long enough to produce the action you desire, and then it is withdrawn the length of the tip that is marked upon the shaft of the electrode, and the second section is cauterized. When the whole cavity is thus cauterized it may be removed without producing any effect upon the canal of the cervix. This is usually the most sensitive part of the whole canal, and will not tolerate the intensities which may be applied to the cavity, besides, atresia might follow.

FIG. 6.



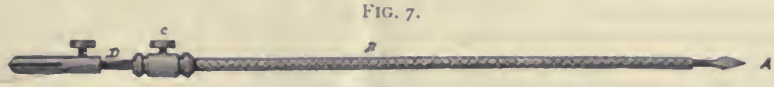
Electrode for applications of galvanism to the uterine cavity.

I show you here also an ordinary puncturing needle, which is screwed into an insulated shaft or handle. But this is an instrument which I should not advise to be used except by experienced hands—I mean experience in application—for, as you will see, it has no shield or guide to limit the penetration. I would advise beginners (and prefer even myself in many instances) to use a needle with a sliding protection upon the shaft fixed by a screw so that a limit to the amount of penetration

may be made. In this way you need not go through the tumor, but stop when you have penetrated it a certain distance, an accident which might occur if you used a needle without this protection.

I show you here an aspirating trocar and canula. This, has a protecting sliding covering of catheter material and a screw adjustment to limit the amount of penetration, and is used for tapping small cysts and hydrosalpinx, and pyosalpinx when accessible through the vagina. I would not have you infer, however, that I advise its use in all cases. It is, in fact, only applicable in certain conditions. I tap the sac with this trocar and canula, withdraw the trocar, and empty it of the fluid.

FIG. 7.



Puncture needle with sliding cover to limit penetration.

The trocar is then reintroduced and the attachment made with the battery, with either pole (usually the negative pole is preferred), with the current turned on (from fifty to one hundred milliampères) thus cauterizing the tissues which are penetrated by the canula, and in this way avoiding the chance of the absorption of any septic material. Beside, the action of the current upon the collapsed sac tends to prevent the reaccumulation of the fluid. I seldom find it necessary to tap the sac more than once. While it may be advisable to do this in most cases of hydrosalpinx where easily accessible, it is not always wise to do it for pyosalpinx. I prefer to drain a pyosalpinx through the uterus. Frequently I have been able to accomplish this by applications of strong positive galvanism to the entrance of the tube into the uterus (into the cornua of the uterine cavity on that side), by means of a small platinum-tipped electrode the size of an ordinary uterine sound and not more than a half to three-quarters of an inch in length. In several instances I have been able to drain the pyosalpinx in this way through the uterus intentionally. I first discovered this accidentally after applying a current of a hundred milliampères to the cornua on the diseased side; the withdrawal of the electrode was followed by the escape of a tablespoonful of pus, and the patient experienced immediate and permanent relief. Several times since this accidental discovery I have accomplished the same thing, but I cannot say definitely that it can always be accomplished. When this cannot be accomplished and when the condition is appropriate for it the tube may be tapped through the vagina.

When a pyosalpinx is tapped by the vagina it is best always to wash the cavity of the tube thoroughly through the canula with an antiseptic solution, generally either with an aspirator or with the surgical pump, before the galvanism is applied to the track of the canal. Permanent drainage may be secured through this cauterized drainage track and the cauterization prevents the absorption of septic material in its passage along this opening. The opening remains patulous for several days, usually as long as there is any necessity for drainage. If closure occurs it is an easy matter to pass the trocar again, or a small blunt electrode along the track while connected with the negative pole of the battery. It will work its way along the track made previously and enter the sac, reopening it for drainage.

FIG. 8.

Aspirating trocar and canula.

The diseases which I have found amenable to treatment by galvanism and which have yielded very satisfactorily to the treatment, I may say often more satisfactorily than to any other form of treatment known to me or heretofore used by me, are: Uterine flexions, obstructions in the canal, hypertrophy of the organ, metritis, endometritis, menorrhagia and metrorrhagia, chronic pelvic cellulitis, exudations and adhesions, hæmatoma and hæmatocele, ovaritis and salpingitis, and certain conditions of hydrosalpinx and pyosalpinx.

I have not yet quite made up my mind that electricity is proper for actual stenosis. I prefer to dilate first and maintain the dilatation in the beginning with the intrauterine stem worn for one week only while the patient is confined to bed, and subsequently by the use of negative galvanism to the canal. In treating flexions and obstructions in the canal we use negative galvanism as a rule, and the strength necessary will vary from ten to fifty milliampères, according to the condition and chronicity of the case. Cases of chronic hypertrophy are likewise treated by negative galvanism. Chronic metritis and endometritis are usually treated with positive galvanism, but there are conditions which call for treatment by the opposite pole. Menorrhagia and metrorrhagia may be treated by positive galvanism with currents varying from fifty to one hundred milliampères used intrauterine. Chronic pelvic cellulitis, exudations and adhesions of long standing, after all inflammatory action has subsided, yield readily to treatment by negative galvanism by the vagina, and it is in these conditions that I maintain strong currents are required. I frequently reach two hundred milliampères in the treatment of these conditions and find that exudations and adhesions melt away like ice under the rays of the sun. Of course, it would not do to begin the treatment of a case by using such high intensities. Beginning with fifty milliampères, treating the case every second or third day, and gradually increasing the dose, the tolerance of the current may be increased, and the high intensities, when reached, will produce no more discomfort or inconvenience to the patient than the small dose did at the beginning. As the menstrual period approaches if there is a tendency to over-menstruation the intensity must be lowered, and in beginning the treatment again after menstruation a smaller dose must be applied and again gradually increased. Fixation of the pelvic contents is to be treated in the same manner. A good rule to follow is to use positive galvanism in the vagina for its inter-polar action as long as there is any active inflammation, or as long as the vaginal roof is

sensitive to ordinary pressure. When the condition is chronic, or when the roof is sensitive only to deep and sudden pressure, negative galvanism is indicated.

Hæmatoma and hæmatocele afford a striking illustration of the prompt remedial influence of electricity. Hemorrhage, in a case seen early, may be controlled to a certainty by positive galvanism applied through the vagina. When the case is seen after hemorrhage has ceased, positive galvanism is indicated to control further hemorrhage, to contract the clot which has formed, and to hasten the separation of the serum. If the separated serum is of considerable quantity and produces pain from pressure, it may be withdrawn by trocar and canula in the same way that I described the withdrawal of the hydrosalpinx, but positive galvanism must be used immediately afterward to contract the capillaries and prevent the recurrence of hemorrhage and to favor the closure of the sac which contains the fluid. Positive galvanism must be used, however, for some time subsequently to produce a still further contraction of the clot, and as soon as all sensitiveness has subsided, and all inflammatory action surrounding the effusion has been subdued, negative galvanism may be applied through the vagina to hasten absorption, or, if the case is an obstinate one, absorption may be hastened by negative galvano-puncture of fifty to one hundred milliampères.

Small cysts and fibro-cysts of the ovary and in the broad ligament frequently yield readily to negative galvano-puncture through the vagina, some of them requiring only one puncture for their complete removal.

Fibroid tumors of the uterus are reduced in size by applications of strong currents by galvano-puncture. The growth of the tumor is arrested, it is lessened very materially in size, and frequently is reduced so much as to give no further inconvenience to the patient. I have been thoroughly satisfied so far with my experiments with electricity in the treatment of fibroid tumors. Very large and hard tumors of long standing yield slowly and demand strong currents, frequently from two hundred and fifty to five hundred milliampères, and, of course, necessitating the use of an anæsthetic. In many of the cases I have been able to puncture at my office and send the patient home in the carriage. I should not care to advise it in all cases. I prefer to put the patient to bed immediately after the operation and keep her there until all unpleasant symptoms have subsided. Where hemorrhage occurs from the uterine cavity in connection with these fibroids, we treat them by positive galvanism to the endometrium, as advised by Apostoli, administering one hundred to one hundred and fifty milliampères, cauterizing the whole uterine cavity.

243 WEST 54TH STREET.

ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF THE TONSILS AND ALLIED BODIES WHEN A CAUSE OF PHARYNGEAL IRRITATION.

BY HARRISON ALLEN, M.D.,
OF PHILADELPHIA.

ON a former occasion[1] I invited attention to the subject of pharyngeal irritation which appeared to be excited and maintained by small tonsils, and by the glands below the tonsils on the side of the pharynx. My studies in this direction, since the date of the paper named, have tended to confirm the importance of the conclusions therein stated, and I venture to submit the following detailed account of the manipulations which, in my hands, have proved to be of value.

THE TONSILS.—When the symptoms of pharyngeal inflammation do not subside by the use of gargles and sprays, or after internal medication, it is probable that a local cause exists which will yield to surgical means only. In order to determine the exact condition of the tonsil, the following method of examination is recommended. A tongue depressor is placed upon the tongue and given to the patient to hold. The mouth is opened to its widest extent, and an aneurism needle (the adjustable end of which has been firmly soldered on to the shank or handle) inserted behind the palato-glossal fold, and gentle traction made forward and slightly outward. To a patient who is untrained it is quite likely that gagging will ensue upon this manipulation. With the exercise of a little care, however, the irritability may be so far overcome as to enable the tonsil to be freely seen. Very often no trace of a tonsil is discerned until such a manipulation is resorted to. Tonsils which are concealed between the palato-glossal and the palato-pharyngeal folds of the pharynx are very apt to give rise to irritation. Their condition can be determined in no other way known to the writer, than the one indicated. It is an interesting fact that the act of gagging itself rather assists than otherwise in the examination, since a disposition exists for the tonsil to be turned slightly upon itself. If the patient remains composed and does not move the shoulders backward, both he and the physician can remain indifferent to the gagging as long as it does not excite vomiting.

The tonsil is ordinarily composed of two masses, an upper and a lower. They might be compared to two beans lying within a pod ; the two portions lying in such wise that the lower is in advance of the upper. The spaces between them are often found occupied by pellets of solid secretion, which, owing to the unfavorable position of the folds, have been unable to escape into the throat. Such masses are persistent causes of irritation, and may themselves be the main cause of pharyngitis and laryngitis. They are, in most instances, easily removed by a scoop held in the left hand, while the right is engaged in drawing forward, with the retractor, the anterior fold. The pellets lying between the tonsil-masses may be embedded in their substance or be lodged in pockets. Such is especially the case with the upper tonsil-mass, which may lie far up in the tonsillar space and be adherent by all its surfaces, except the median, to the surrounding membranes.

[1] The Tonsils and Pharyngeal Irritation, THE MEDICAL NEWS, July 8, 1882, p. 31.

Secretion so retained is best removed by the galvanic cautery, an electrode being used which retains a very small platinum loop projecting from the end of the insulated shaft.

I have notes of three cases in which the upper tonsil-mass was the seat of a small abscess which gave rise to extreme distress of the pharnyx, and induced laryngitis which persisted for some months after the tonsillar condition was entirely corrected.

The lower tonsil-mass may be adherent by synechial bands to the palatal folds. The union to the anterior fold is not, as a rule, accompanied by distress, but that with the posterior fold it is invariably the source of great irritation, which in my judgment remains unrelieved until complete division of the united surfaces is effected. The same remark is true when the posterior surface of the lower mass is adherent to the outer wall of the pharynx.

Not infrequently, the lower mass is retroverted; that is to say, it is turned back on itself in such a manner that the surface which should point toward the lumen of the pharynx is directed outward, and is in contact either with the posterior fold or the lateral wall of the pharynx. In these conditions it is inevitable that each movement of the palato-pharyngeal muscles teases the entire pharynx. To correct the evils of the false union, above named, all bands and surfaces of adhesions must be freely divided, and the cut surfaces seared so as to prevent the reëstablishment of their union. When the pharynx is excessively irritable a species of trismus appears to be excited, which often makes it difficult to open the mouth for a distance sufficient for the easy manipulation of instruments. In many individuals, this disposition is almost impossible to overcome. Another difficulty is recognized in the gagging which ensues in the use of the knife or electrode. Especially is this the case when the tonsil is to any degree retroverted.

The instruments which are needed for the separation of the bands of false union are few and simple. The manipulation attending their use is much the same as in the removal of retained tonsil secretion. The tongue being depressed by the patient, and the mouth held open as wide as possible, the retractor is made to expose the lower tonsil-mass with the right hand, while the left hand carries a pair of Tieman's bullet forceps to the tonsil, and a portion of the gland is firmly seized. The right hand now relinquishes the retractor, and the tonsil being drawn out into the throat as far as is practicable, a bistoury is taken by the disengaged right hand and employed to separate the surfaces in any desired direction. In some cases a tenaculum can be substituted for the bullet forceps, but in order for it to prove effective the shank, which bears the hook, must be turned at a right angle for a distance equalling the length of the hook itself. This enables the operator to insert the tenaculum within the tonsil-mass by simply rotating the instrument within his hand. The instrument is precisely similar in plan to the perforated needle used by J. Marion Sims. The employment of the galvano-cautery is often made compulsory when the irritability of the parts or the intractableness of the patient is very great. The electrodes should be of small size and inserted in the recesses or pockets of the tonsils, small portions only being destroyed at a time.

THE INFRA-TONSILLAR GLANDS.—These bodies, which are glandular in character and which lie on the sides of the pharynx below the tonsil, are often enlarged and serve as sources of irritation when the tonsil itself is healthy. From the proximity of the more inferiorally placed bodies to the epiglottis, the infra-tonsillar glands may be an exciting cause to laryngeal cough. These bodies are conveniently named the infra-tonsillar glands. Resisting as they do all attempts to reduce their size by medication, it often becomes necessary to destroy them. This is best done by the galvano-cautery. Surfaces ranging in size from one to four millimetres may lie in clusters or groups between the lower margin of the tonsil and the epiglottico-pharyngeal fold. One or two of the bodies can be safely destroyed at a sitting. As a rule, the parts can be exposed by depressing the tongue, but, if in exceptional cases this is not practicable, the tongue may be held by the patient in a position for laryngoscopy, and the electrode applied to the gland.

A CASE OF CHOLELITHOTOMY, WITH REMARKS UPON THE SURGICAL TREATMENT OF CHOLELITHIASIS.[1]

BY MILES F. PORTER, M.D.,
OF FORT WAYNE, IND.

MRS. J. L. P., æt. fifty-two years, mother of four children, of English birth, but a resident of this country for more than forty years, and of Arkansas for the past three years, consulted me the latter part of January last. She passed the menopause normally four years ago. In the past two years she has lost sixty pounds in weight, though, aside from a few chills of ague and a very tired feeling in the morning, she has not been sick.

She suffered at times from "wind in the stomach," but not to give rise to more than discomfort. About three weeks prior to her visit to me she had one of these attacks, and to relieve it she was rubbing her stomach, as was her custom, when she discovered a tumor, for which she consulted me.

A careful inquiry failed to elicit from her any further history than that given, and nothing of importance in her family history; but her sister stated to me that she (the patient) had frequently suffered, in years gone by, with very severe pain in the belly, and that she was often jaundiced, while I remember,

[1] Read before the Indiana State Medical Society, May 2, 1889.

myself, having given her, two years ago, a hypodermatic of morphia for a pain in the belly, but, as there was another case in the house at the time interesting me very greatly, I accepted her diagnosis of "wind colic." Whether or not she was jaundiced after that attack, I do not know.

The following notes are taken from my record book: Complexion rather muddy, bowels constipated, flesh flabby, abdominal walls lax but rather fat. There is in the right hypochondriac region an apparently solid tumor, about size of fist, which moves with the liver in respiration, which can be moved latterly and upward to the right, but cannot be made to cross to the left of the *linea alba*, neither can it be moved downward much. The lower border of the growth can be grasped with the hand, but am not able to separate it from the liver. The percussion note over the tumor is dull. Handling gives distress in the left hypochondriac region and epigastrium, but no pain. The ascending colon is to the outer side of the tumor. She has an anal fistula, which has existed for seven years, at times closing, only to open again, and piles which date back two years.

My diagnosis is a solid tumor connected with the liver, and probably the gall-bladder filled with calculi. I explained to the patient my diagnosis, together with the uncertainties connected with the diagnosis of such cases without opening the abdomen. She was very loath to return to Arkansas, where she would be miles away from a competent surgeon, without at least knowing the exact nature of her trouble, and, on being told by me that the mortality-rate of exploratory operations was not over two per cent., she decided to have it done, and said that "she knew there was something in there which had no business there," and that she wanted it removed if I concluded, after opening the belly, that the chances of life and death would be even.

The operation was accordingly made on the 10th of February, in a private house, in a room especially prepared, and with the assistance of Dr. H. McCullough, Dr. T. J. Dills giving the ether. The incision, three inches long, was made over the most prominent part of the tumor and parallel with the *linea alba*. The tumor being exposed, a small trocar and canula was inserted into it, and, on removing the trocar, a small quantity of muco-pus escaped, but no stones were felt, and the canula was therefore withdrawn and the trocar alone inserted, which immediately came in contact with the stones. Two strong silk threads were now inserted in the most prominent part of the tumor, parallel with each other and about half an inch apart, by which it was drawn well up to the abdominal walls and held there by Dr. McCullough while the incision was made between the threads and the stones removed—ten in number and about the size of chestnuts. The peritoneum was protected by sponges. The gall-bladder was much thickened, measuring about $\frac{3}{16}$ of an inch. The stones were extracted with a pair of uterine dressing forceps, aided by the finger and a blunt aneurism needle. The latter was found to serve an excellent purpose in dislodging the last stone, which was firmly impacted in the neck of the bladder, and I should not want to commence another like operation without this or a similar instrument at hand.

Not being positive that the peritoneum had entirely escaped contamination, two glass drain tubes were placed, one at the side of the gall-bladder from which some adhesions had been torn, and one which reached lower in the general peritoneal cavity. A small rubber tube was placed in the gall-bladder, the latter stitched to the abdominal walls, and the rest of the incision closed with interrupted sutures of iron-dyed silk. She was under ether about two hours. Shock was slight. The glass tubes were cleansed every two hours by suction, and removed at the end of twenty-four hours, as they were doing no good. There was considerable nausea and vomiting from the ether, but this stopped within the first twenty-four hours.

The recovery was uninterrupted save by vomiting, which occurred once on the twelfth day, and was due to eating heartily of farina pudding with raisins in it. No pain of consequence was complained of. With the exception of two seidlitz powders, no medicine was given. Uneasiness from gas was relieved by the daily use of enemas and the use of the rectum tube. After the first twenty-four hours the bile flowed through the tube abundantly, though there was at no time any leakage of bile of consequence around the tube, notwithstanding the rather long incision it was necessary to make in order to remove the calculi. The patient slept well from the first. A superficial stitch was removed on the fourth day, one of the deep parietal ones on the fifth, and, as supposed, all of them on the seventh day, though two more were found and removed on the tenth day.

The dressings were of carbolized gauze and absorbent cotton, and were changed three or four times daily with a view to keeping the wound dry should leakage of bile occur.[1] There was no pus formation, and all of the wound, except that represented by the gall-bladder, healed by first intention. By the end of seventeen days the wound was healed up to the tube, and it was removed. The discharge of bile gradually grew less, and the fistula closed on the thirty-seventh day and remained closed for ten days, when it opened during an attack of vomiting from acute indigestion, and remained open for two days, since which time it has remained closed.

The highest temperature was 101⅘° F., and the highest pulse-rate 90, both of which occurred on the twentieth day, and were due to temporary closure of the anal fistula, which opened the next morning, when both pulse and temperature dropped to normal.

On April 4, I operated for the anal fistula, from which operation she has now (April 9) practically recovered.[2]

Were I to operate again for gall-stones I should use the continuous suture by Tait's method for se-

[1] The tube draining the gall-bladder was left long and emptied the bile outside the dressings.

[2] It is well to add that I was consulted yesterday, May 27th, by the patient when I found that a hernia had developed at site of operation. It causes slight inconvenience and is easily reduced and retained.

curing the gall-bladder to the abdomen, inasmuch as the interrupted sutures are quite difficult to remove, especially if the patient is fleshy.

In THE MEDICAL NEWS of February 9, 1889, is copied an abstract of an article by Dr. A. De Page upon "Surgical Intervention in Biliary Lithiasis" (*Journ. de Med. Bruxelles*, 1888, No. 24), from which we learn that up to date there had been 78 cholecystotomies made:

"Of these operations, 6 were done according to the method of Spencer Wells, 72 with suture of the gall-bladder to the abdominal wall. Of the first-named series 3 died of acute peritonitis, 1 cured case was followed by recurrence, and 2 cases were completely cured. Of the second series there were 11 deaths—5 from hemorrhage and collapse, 2 from biliary retention, 2 from effusion of bile into the peritoneum, and 2 from undetermined cause; there were also 4 deaths from secondary complications. Amongst the 'cures' are 24 cases of biliary fistula, some permanent. The number of cholecystectomies has been 22, with 2 deaths from obstruction of the bile-duct, and 1 after recovery from the operation from a cause independent of biliary lithiasis. Thus, in cholecystotomy with suture of the gall-bladder and its return free into the abdominal cavity, a mortality of 50 per cent. resulted; in cholecystotomy with suture of the bladder to the parietes, 15.27 per cent.; and in cholecystectomy, 9.99 per cent.; and as the last-named figure comprises the two cases of permanent occlusion of the common duct, the result, if they be excluded, is to enhance greatly the position of cholecystectomy as an operation to be preferred to cholecystotomy."

Notwithstanding the lower death-rate in cholecystectomy, it seems to me that cholecystotomy, with suture of the gall-bladder to the parietes, is the operation to be preferred in these cases, for we can never be absolutely certain that the bile-duct is patent;[1] and should calculi reform after this operation, or should it for any reason become necessary to reopen the gall-bladder, the operation (with this viscus attached to the parietes) becomes a trivial one.

While the danger of permanent fistula after this operation is used as an argument against it, yet it seems to me that it should weigh in the other direction; for a fistula remaining, in spite of efforts to close it, is proof of partial or complete closure of the duct, and, where this condition obtains, the patient's life depends upon this outlet for the bile remaining open.

Aside from other objections, it seems that the mortality attending cholecystotomy by Wells's method is sufficient reason for its abandonment.

No. 100 FAIRFIELD AVENUE.

MEDICAL PROGRESS.

Dry Antisepsis.—Since the early days of its introduction, antisepsis has undergone great changes. The principles are the same, but the methods of procedure have been greatly simplified, and their adoption rendered more general. Some recent investigations in connection with irrigation have afforded important results. In many cases, flushing of the abdomen in laparotomy has been found to lower the temperature and increase the risks of shock. To obviate these risks, DR. LANDERER, of Leipzig (*Wiener med. Presse*, No. 19, 1889), has conceived the "dry method" of operating, which he claims has been attended with most successful results, and it is warmly advocated by a number of German surgeons. His aim is to obtain antiseptic results without resorting to the use of antiseptic solutions, and his method of conducting operations, briefly stated, is as follows: The instruments, having previously been boiled, should be kept in a solution of carbolic acid during the operation. The hands of the operator must be antiseptically cleansed. During the operation the blood should be sponged away by means of dry bichloride gauze, and those parts of the wound where the operator's knife is not at work should be kept packed with tampons of sublimate gauze. At the close of the operation, after the larger vessels have been ligatured, the wound should be thoroughly dried with the sublimate gauze, and then closed. No drainage is necessary, for, according to Landerer's experiences, when this dry method has been used, no secretions are formed in the wound. The wound should then be dressed with dry antiseptic or sterilized dressings, and a bandage with moderate pressure applied. In ninety operations performed by Landerer, in which his method was employed, all the wounds healed by first intention.

The principal points gained by dry antisepsis are as follows: First, the avoidance of the frequently fatal chilling and wetting of the patients; secondly, decided decrease in the amount of blood lost, which, thirdly, greatly facilitates rapid operating; fourthly, sure and speedy healing. Also, as the quantity of antiseptics used is reduced to a minimum, dangers from poisoning due to the absorption of the drugs employed are almost entirely avoided.

The simplicity of dry antisepsis renders it equally adaptable to the practice of the country or army surgeon as well as to that of the city or hospital practitioner.

The Treatment of Leucorrhœa.—The following prescription has been found most efficacious, by DR. MONIN, in stubborn cases of leucorrhœa:

℞.—Infusion of chamomile . . ℥xvij.
Alum . . . . . ℥ijss.
Iodide of potassium . . . ℥j.
Tincture of iodine . . . ♏xxxij.—M.

Three injections should be made daily, and, in addition, general tonics and sulphur baths are advisable.—*Gazette de Gyn.*, May 1, 1889.

The Surgical Treatment of Tubercular Peritonitis.—In a noteworthy article by DR. F. SPÄTH, of Hamburg, in the *Deutsche medicinische Wochenschrift* of May 16, 1889, on the surgical treatment of tubercular peritonitis, the following conclusions are reached:

1. In cases of primary tubercular peritonitis in which no other organs are involved, laparotomy can be looked upon as a curative measure, and recommended.

2. In cases of tubercular peritonitis in which the tuberculous process has involved the female genitals, no defi-

[1] Vide Abdominal Surgery, by Greig Smith, 2d ed., p. 593.

nite results have been obtained, whether the diseased portions of the genital organs were extirpated or not.

3. In cases of tubercular peritonitis orginating from tubercular growths of the bowels, the operative treatment is only valuable as a palliative.

4. In cases of tuberculosis of the genital organs, unaccompanied by peritoneal tuberculosis, speedy and early operative interference is of value. The indications for such a procedure are very obscure, owing to the difficulty of obtaining a bacteriological diagnosis.

5. Primary tubercular peritonitis is a much rarer disease than has been heretofore considered; therefore, a positive diagnosis should only be accepted when based upon careful bacteriological investigations.

Constipation in Females.—DR. LUTAUD gives the following formula, which he has found most efficacious in stubborn constipation in females:

℞.—Citrate of iron and ammonium .	31 grains.
Fluid extract of cascara sagrada .	32 ♏.
Saccharine	8 grains.
Distilled water	f ℥ijss.—M.

Half teaspoonful before each meal.—*Revue de Thér. méd.-chir.*, May 1, 1889.

Abortion Produced by Tampons of Iodoform.—In two cases of necessary abortion during the third month of pregnancy, DR. SSOLOWJEN resorted to the following method of treatment. Small balls or tampons of iodoform cotton were pushed into the cervix and held in place by a vaginal tampon. As soon as a tampon was expelled into the vagina it was replaced by another. The third ball of iodoform cotton was pushed into the uterus and after its expulsion fourteen tampons were inserted, whereupon the fœtus was expelled. The first patient had a high temperature during the abortion but was well immediately after. The second patient, in whom the manipulation had to be continued for three and one-half days, also had fever for one day. Ssolowjen considers the use of iodoform tampons a most valuable agent for producing abortion.—*Centralblatt für Gynäkologie*, May 4, 1889.

The Antiseptic Treatment of Diphtheria with Quinoline.—DR. DORNAT, in the *Gazette hebdomadaire Méd. et de Chir.*, April 19, 1889, recommends the use of quinoline as a local remedy in diphtheria on account of its antiseptic properties, and says that he has found it most efficacious.

As a gargle, he prescribes it in the following formula:

Quinoline	grs. 9.
Alcohol (at 194°)	f ℥j.
Boiling distilled water . . .	f ℥xvj.
Essence of menthol	gtt. j.

For local application:

Quinoline.	grs. 15.
Alcohol (194°))	
Distilled water)	āā f ℥vij.

Creolin in Flatulency.—DR. HILLER, in the *Deutsche med. Wochenschrift*, April 25, 1889, recommends the use of creolin in cases of flatulency. He has found that doses of five to fifteen grains, given in gelatine capsules, three times a day, are most effectual. No unpleasant symptoms were observed to follow its use even when given in two-drachm doses. Dr. Hiller advises, however, that the treatment should begin with doses not greater than from two to five grains.

Treatment of Suppurating Buboes with Iodoform.—Although the treatment of suppurating buboes with iodoform is not new, the manner of applying it, as told by DR. FONTAN, in the *Lyon Medical*, April 26, 1889, is certainly novel. After the bubo has been well opened by means of a curved bistoury, and thoroughly washed out with an antiseptic solution, a mixture of iodoform and vaseline (one-sixth iodoform), having been liquefied by heat, is injected in the cavity; then cold applications of wet bichloride cotton are made in order that the vaseline may solidify around the opening of the wound. A speedy and complete cure is said to have resulted in every case, suppuration being completely arrested. In chancroidal buboes the same treatment was found to be most effectual.

Treatment of Tabes by Suspension.—At the last meeting of the Neurological Society of Berlin, PROF. BERNHARDT reported the results of 220 suspensions in 19 cases of tabes. He concludes that suspension by means of Sayre's apparatus is a most valuable therapeutic agent in this disease. In almost every case he observed a decrease, if not disappearance, of the lancinating pains, improved walk, a diminution of ataxic symptoms, strengthening of the functions of the bladder, and improved mental and general physical condition.—*Deutsche med. Woch.*, May 16, 1889.

An Application for Boils.—DR. HALLE, in *L'Union méd.* of May 14, 1889, gives the following prescription, which he claims, when used according to the directions given below, never fails to abort boils:

℞.—Tincture of arnica flowers . .	f ℥ijss.
Powdered tannic acid)	
Powdered gum arabic) .	āā ℥jss.—M.

Paint the boil and the surrounding skin with this mixture every five minutes until the coating becomes thick and hard; the pain will immediately disappear.

Sweating Feet.—The fetid sweat of the feet, so frequently met with, may be quickly cured by the following simple procedure: Soak the soles of the stockings to be worn on the following day in a three per cent. solution of boric acid, and allow them to dry during the night. The stockings should be changed at least every other day, and the feet kept clean. The most stubborn cases will yield to this treatment.—*Monatsheft für Prakt. Derm.*, May 1889.

Chloroform Inhalations in the Treatment of Severe Forms of Pneumonia.—DR. CLEMENS, in the *Allg. med. Centr. Ztg.*, No. 21, reports forty-two cases of severe forms of pneumonia, which were treated exclusively with inhalations of chloroform. According to the author, these inhalations not only immediately alleviate all pain, but also cut short the duration of the disease itself. Indeed, in most cases after a continuous use of this remedy for twelve hours a considerable and rapid fall of temperature was noted.

Unfavorable symptoms resulting from its use the author claims never to have observed, provided the chloroform had not undergone decomposition. For these inhalations the chloroform is diluted with alcohol. The severer the case the greater the quantity of alcohol, as longer use of the remedy is necessary. Clemens' method of administering the drug is as follows: a small ball of lightly wound cotton is allowed to absorb about two or three drachms of the alcoholic solution of chloroform. This is then wrapped in loose cotton and held within about an inch of the face. The inhalations should be interrupted from time to time.

In substantiation of the value of his method of treatment, Clemens claims not to have lost a single case of inflammation of the lungs during a practice of forty-two years.

Snuff for Coryza.—SIR MORELL MACKENZIE recommends the following snuff in cases of coryza:

℞.—Sulphate of morphia . . . gr. ij.
Subnitrate of bismuth . . . ʒj.—M.

Small quantities of the powder should be snuffed up into the nose during the first forty-eight hours of the affection.—*L'Union méd.*, May 18, 1889.

Hemorrhoids Treated by Dilatation of Anus and Rectum.—PROF. SCABBOTIN, says the *Prager med. Wochenschrift*, April 17, 1889, recently claims to have radically cured sixty-one cases of hemorrhoids by forcible dilatation of the anus or rectum. A "Trélat dilator" was used for the purpose. No unpleasant symptoms were ever observed to follow the operation.

Hypodermatic Injections of Blood in Anæmia.—DR. H. WESTPHALEN, in the *Centralbl. für Therapie*, No. 5, 1889, reports a case of extreme anæmia which was cured by subcutaneous injections of blood, according to Ziemssen's method. The case was that of a man, aged thirty-six, whose blood was extremely poor; the number of red corpuscles being only 840,000 to the cubic millimetre. Tonic treatment had been pursued for some time previous but to no avail.

About five ounces of blood were taken from the median vein of a healthy subject, caught in a vessel and defibrinated by stirring with a glass rod, then strained through gauze to remove the larger particles of fibrine, and then injected under the skin of the thighs; about six or seven drachms being injected at each puncture. Then the limbs were vigorously rubbed and manipulated in the direction of the lymphatic stream. The absorption of the blood was complete. No unpleasant symptoms followed the operation. The next day the pulse, which had been 100, dropped to 80. Eight days later the patient's blood was examined and found to contain 1,240,000 red blood-corpuscles in a cubic millimetre. In one month he was pronounced cured.

Unpleasant Symptoms Following the Use of Sulphonal.—DR. PAUL REHM reports to the *Berliner klin. Woch.*, No. 16, several cases in which most unpleasant symptoms were observed to follow the use of sulphonal. In one case, in which the drug was given in eighteen-grain doses for muscular rheumatism, it acted well for the first three doses, after which symptoms of fatigue and depression manifested themselves. The drug still being continued, these symptoms were followed by constipation, loss of appetite, intense physical and mental restlessness, excitement, fear, a feeling of dizziness when the eyes were closed; later, painful hallucinations and depression. Dr. Rehm, when he called, found the patient in an almost collapsed condition, face pale, pupils contracted, speech scarcely audible; pulse weak, over 100; ischuria, hyperæsthesia of the senses, sight double, muscular contractions, etc. The patient was wholly unable to move, and two weeks later was only able to walk with a staggering gait. Dr. Rehm also reports several other cases in which similar, although not so intense, symptoms were observed to follow the use of moderate doses of sulphonal.

A New Soap for Scabies.—At the last meeting of the Therapeutic Society of Paris, DR. CONSTANTIN PAUL gave the following formula for a "scabies soap":

℞.—Soap . . . . . 100 parts.
Petroleum } . . . āā 50 "
Alcohol }
White wax . . . . 40 " —M.

If the body is well washed with this soap two or three times a day, the scabies will disappear in two or three days.—*Wiener med. Presse*, May 12, 1889.

Perfumed Chloroform.—In cases in which the administration of chloroform produces vomiting, or is otherwise badly tolerated, DR. NUSSBAUM, in the *Revue de Thérap. méd.-chir.*, of May 15, 1889, advises the use of chloroform perfumed with oil of cloves. He claims to have repeatedly used the anæsthetic thus perfumed in the most sensitive cases, without its ever causing vomiting. The possibilities of casualties resulting from the use of chloroform are said to be greatly lessened by perfuming it.

The Treatment of Metrorrhagia.—DR. ROKITANSKY has found the following most efficient in cases of metrorrhagia:

℞.—Extract of ergot . . . . ʒjss.
Cinnamon water . . . . fʒvj.
Syrup of bitter orange rind } āā fʒss.
Rum (good quality) }
Salicylic acid . . . . . gr. viij.—M.

Dose, a teaspoonful three times a day.—*Revue de Thérap. méd.-chir.*, May 15, 1889.

Fœtal Infection by Typhoid Bacilli.—The question as to whether or not the typhoid bacilli can infect the fœtus has been actively discussed of late. A case which was lately reported by DR. T. C. EBERTH, and referred to in the *Centralblatt für Bakter. und Parasit.*, May 3, 1889, apparently settles the question. A woman, aged thirty, in the fifth month of pregnancy, was taken with typhoid fever and miscarried. The fœtus was at once subjected to a most careful examination, and in the cardiac blood, as well as in the secretions of the lungs and spleen, the bacilli were found. Strange to say none were discovered in the liver. The bacilli thus procured were transferred to cultures (potatoes, gelatine, etc.), and developed further bacilli. That these microörganisms were true typhoid bacilli Eberth does not alone state upon his own

responsibility, but also upon the unanimous opinions of eminent bacteriologists.

Formulæ for Creasote.—On account of the disagreeable taste of creasote, its internal administration is advised in the form of capsules. Still there are other forms of prescribing it which are useful. The following are given by DR. KEFERSTEN, in the *Gaz. hebd. de Méd. et de Chir.*, May 10, 1889, and although not new, may be found valuable:

I. The usual formula for creasote capsules is:

℞.—Creasote . . . . . ¾ gr.
Balsam of tolu . . . . ⅓ gr.—M.

The above is for one capsule. Average dose, three capsules a day.

II. The following emulsion of creasote well replaces cod-liver oil and creasote:

℞.—Oil of sweet almonds . . f℥v.
Creasote (beech-tree) . . f℥ij.

Dissolve and add

Gum arabic . . . . ℥jv.
Dist. menthol water . . . f℥xvij.—M.

About a tablespoonful may be given from two to five times a day.

III. Under the title of "creasote drops" Kefersten gives the following:

℞.—Creasote . . . . . ℥j.
Tincture of cinnamon . . f℥jss.

The average dose is fifty drops daily in port wine.

IV. In cases in which there is cough and diarrhœa the following pills will be found most valuable:

℞.—Creasote . . . . . 31 grains.
Acetate of lead . . . 4 "
Extract of opium . . . 3 "
Syrup of sugar . . } āā q. s.—M.
Gum arabic . . . }

Make into one hundred pills. Dose, five to six pills three times a day.

V. Lastly, Kefersten recommends "creasote potion," as given below:

℞.—Creasote . . . . . 15 grains.
Alcohol . . . . . f℥vj.
Syrup of cinnamon . . . f℥ivss.—M.

Dose, about two dessertspoonfuls a day; this may be gradually increased as deemed advisable.

Carbolic Acid Spray in Whooping-cough.—DR. E. MAURICE reports to the *Journal de Méd. de Bordeaux*, No. 36, several cases of whooping-cough which he has treated most successfully with carbolic acid spray. A five per cent. solution is used, and about a quart sprayed at three different intervals during the day. The paroxysms of coughing are immediately relieved and the duration of the disease materially lessened.

Plastic Operation in Open Cancer.—To change an open cancer into a covered cancer, DR. P. KRASKE, in the *Centr. für die med. Wissensch.*, May 18, 1889, advises the following method of procedure, which he has used successfully in three cases. After the surface of the cancer has been freshened by means of a sharp scoop or knife, a flap of healthy neighboring skin is brought over the surface of the cancer and fixed in place by a few stitches. If the surface of the cancer has been well freshened, and if the operation is conducted according to strict antiseptic principles, healing by first intention may be expected. Skin grafts should be made upon the exposed flesh from which the flap was taken.

Application for Warts.—The following is quoted from the *Gaz. med. Lomb.*, May, 1889, and is claimed to be very effectual:

℞.—Acid salicylic . . . . grains 15.
Alcohol . . . . . ♏xvj.
Ether . . . . . ♏xxxx.
Collodion . . . . . f℥jss.—M.

Apply daily to the warts.

Treatment of In-growing Nails with Tinfoil.—DR. THEODORE CLEMENS, in the *Thérap. Monatscheft* for May, 1889, highly recommends the treatment of in-growing toe-nails with tinfoil packing. The process is merely to pack under the sharp edge of the in-growing nail one or two thicknesses of common tinfoil with the aid of a small pincette. The treatment, which after the first time the patient can readily undertake himself, is painless, and need be continued for a few weeks only; in which time it will only be necessary to renew the packing about four or five times. Clemens claims that the tinfoil acts chemically as well as mechanically—its composition being iron, copper, arsenic, molybden, wolfram, and bismuth. In cases of in-growing nails occurring in patients suffering with hereditary syphilis, the remedy acts with special efficacy.

Toothache Drops.—

℞.—Morphine acetate . . . . grain 1.
Oil of peppermint . . . gtts. v.
Phenol . . . . . gtts. xx.
Collodion . . . . . f℥j.—M.

Apply with cotton.—*Journ. de Méd.*

The Etiology of Scarlet Fever.—An interesting series of experiments, relating to the etiology of scarlet fever, has recently been carried out by DR. MARIE RASKIN, of St. Petersburg. The results of her researches, which appear in the report of Third Congress of Russian Physicians in St. Petersburg (*Central. für Bakt. und Paras.*, May 10, 1889), are as follows:

The micrococcus scarlatinæ, as described by Klein, she has found to be a streptococcus, and identical with the streptococcus pyogenes. The scarlet fever bacillus, described by Edington, was only found in four cases out of one hundred. However, in every case, Dr. Raskin found a new and as yet undescribed micrococcus. It is of an irregular form and varies in size. It grew well in cultures of agar or gelatine. When found in pairs, the one was invariably larger than the other. The coccus was found in the blood, parenchymatous organs, and also in the skin flakes of the patient. In the blood it was only observed during the first four days of the disease, and then always enclosed in the white blood-corpuscles. Moderate warmth was necessary for its growth in cultures.

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SATURDAY, JUNE 22, 1889.

THE MORTALITY AMONG NURSES.

THE advocates of the non-bacillary origin of tuberculosis have sought support for their position in the immunity often enjoyed by nurses and attendants on the phthisical. That this immunity is the exception and not the rule seems indicated by recent studies by CORNET, whose rules for the prevention of tubercular infection have been adopted by the German Government, and were published in THE MEDICAL NEWS of May 25th (page 572).

In the *Zeitschrift für Hygiene*, Sechster Band, 1889, Cornet publishes the tabulated results of his comparison of the mortality rates in the population of towns and cities and in nurses. A large proportion of German nurses are members of religious orders who by reason of their secluded, regular lives are removed from many causes of acute disease. Such nurses are in the best mental and moral condition to insure health, for which and other reasons the infective diseases ought not to be especially prevalent among them. Care was taken to select orders whose members serve for life and remain celibate.

The material collected was from 38 cloisters, embracing an average yearly service of 4028 women, whose aggregate service in years was 87,450. An examination of this material during 25 years revealed 2099 deaths, 62.88 per cent. of which were from tuberculosis, or nearly two thirds; the usual proportion of deaths from tuberculosis is from one-seventh to one-fifth. Next to tuberculosis comes typhoid, while cancer shows a slightly increased rate of mortality. Death occurred among these nurses at an average age of 36.27 years, an average shorter life than that of workmen exposed to the inhalation of injurious dust, by eight or ten years.

The death-rate from tuberculosis among nurses attains its maximum between the thirtieth and fortieth years, and then steadily declines. When a comparison of the death-rate of nurses and the population of a town is made, it is found that between the ages of 15 and 20 the mortality among nurses is four times that of other population; from 20 to 30, three times; from 30 to 40, twice as great, afterward becoming about equal. The explanation of these facts is found in the prevalence of tuberculosis among nurses, it being nine times more frequent than among other classes. All infectious diseases are more frequent among nurses until the fortieth year of life, after which their death-rate is lower than that of other classes.

It is further shown that during the first six months of service the nurse enjoys comparative immunity from infection; after that the mortality and morbidity rate steadily rises for three years, during which the greatest number of deaths occur. The life chances of nurses do not compare favorably with others; a nurse beginning her profession at seventeen has twenty-one and a half years of life less than a woman of the same age not exposed to infective diseases; so far as relative age is concerned, a nurse at twenty-five has the chance for life commonly enjoyed at fifty-eight; at thirty-three years the outlook of a person aged sixty-two.

This sombre picture, however, is not drawn equally of all hospitals. There are those in which the nurse enjoys a far better sanitary environment, but that these are comparatively few may be realized from the fact that, out of twenty-one hospitals, in fifteen tubercle bacilli in a virulent condition were found upon the walls and beds and bedding.

The practical importance of these studies is self-evident. It is well known that tubercular infection is most frequently conveyed by the inspiration of dried sputa. If the patient expectorates into a vessel containing water, and the sputa fall into the water and do not dry upon the sides of the vessel, upon the bed, wall, or floor, the first source of infection is largely avoided. Especial care should be taken to avoid the retention of sputa in towels, handkerchiefs, and bedding; it is a common practice among

the phthisical to expectorate upon a handkerchief, which is often placed beneath the pillow. Those who handle such infected articles after the sputa have dried are especially liable to infection.

Until those who deny the infectious nature and bacillary infection of tuberculosis offer demonstrative proof of greater scientific weight than that advanced by Koch and others, it is the duty of the practical physician to act upon the belief that tuberculosis is infectious, and to guard against its infection; fortunately the measures necessary for the protection of nurses are possible in all well-regulated hospitals and among intelligent families, and these measures should be strictly enforced.

RESECTION OF THE RECTUM.

THE operation of resection of the rectum, for the removal of high-seated growths, has been performed of late years more frequently and attended with greater success than formerly. Still, the methods principally employed are by no means all that could be desired. One of their chief drawbacks is the fact that the coccyx is always sacrificed, and through this procedure the pelvis robbed of a most important support. The result frequently is incontinence of feces and prolapse of the rectum. HEINECKE (*Münchener med. Wochenschr.*, No. 37, 1888) advises a temporary resection of the coccyx and of the lower end of the sacrum. His method is very complicated and necessitates two operations. Kocher, who has had large experience in rectal surgery, has always found it necessary to resect the coccyx, and Kraske (*Langenbeck's Archiv*, 1886, vol. xxxiii., No. 3) is of the same opinion. A most practicable method has, however, been brought forward by DR. WILLIAM LEVY, of Berlin. He holds (*Centralblatt für Chirurgie*, No. 13, 1887) that the floor of the pelvis and the sphincter should not be incised if possible. The question naturally arises, Is it possible to reach high portions of the rectum without cutting through the floor of the pelvis or dividing the sphincter? To solve this satisfactorily, Levy began a series of experiments upon the cadaver, and finally struck upon an entirely new method of conducting the operation.

The first incision is made horizontally across the sacrum, about one-half inch above the cornua coccygea. This incision should be about four to four and one-half inches in length and should reach to the bone. From the two extremities of this incision two cuts are extended downward, about four inches, through the entire thickness of the gluteus maximus. In one of these perpendicular incisions a wide blunt hook is inserted and the muscle pulled well outward, the lateral portion of the posterior sacro-sciatic ligament is laid bare, and both the posterior and anterior sacro-sciatic ligaments are divided close to the edge of the bone in the direction of the horizontal incision. The same procedure is then carried out on the other side. Now, by means of an elevator, the connective tissue on the anterior wall of the sacrum is freed, and between the elevator and the bone the blunt end of a pair of bone scissors is introduced and the sacrum cut through. The skin flap, with the piece of bone attached, is then pulled down, by means of a strong hook, and a large portion of the rectum will be brought into view. Through this opening, after the connective tissue has been loosened, one is able to reach downward to within three-quarters of an inch above the sphincter and upward to the sigmoid flexure. If, on account of the magnitude of the growth, it is still necessary to cut away more of the sacrum, it may easily be done without interfering with the base of the pelvis.

Of the conclusion of the operation little need be said. The resected bowel should be closed with a double row of sutures, the flap is then brought back into its original position, the excised portion of the sacrum fastened in place by bone suturing, and the horizontal incision closed. The perpendicular incisions may either be packed with iodoform gauze or else closed, except at the lower extremities, which should be left open for drainage. Irrigation may be used for a few days or an antiseptic dressing at once applied.

The great advantage claimed for this operation is that it will leave the patient in full possession of the normal function of the lower bowel. Since the sphincter has not been touched, nor the base of the pelvis robbed of bony support, incontinence of feces and prolapse cannot occur, and the probabilities of an ultimate recovery are greatly enhanced.

THE American Medical Association meets at Newport on Tuesday, Wednesday, Thursday, and Friday of next week, and there is every indication of a large, interesting, and unusually instructive meeting. Several amendments to the constitution, which are printed in another column, will come up for action, and on account of their importance should receive careful consideration. The one providing for a General Committee, proposed by Dr. N. S.

Davis, has very important bearings upon the future mode of conducting the business of the Association.

THE American Neurological Association meets at the West End Hotel, Long Branch, on June 26th, 27th, and 28th.

OUR excellent contemporary, *The Weekly Medical Review*, of St. Louis, evinces its enterprise by announcing that on the first of July it will be enlarged to the size of the *New York Medical Journal*. It also states that another weekly medical journal is about to enter the field in that city.

The Medical Press of Western New York, which has been published for nearly four years under the able editorial management of Dr. Roswell Park, states. in its June issue, that the circumstances which called it into existence no longer exist, and that it has been merged into its older contemporary, *The Buffalo Medical and Surgical Journal.*

M. LOUIS PASTEUR accepted the invitation of the Council of the Royal Society of England to deliver the Croonian Lecture on June 3d, but on account of his ill-health, M. Roux was obliged to read it for him. His subject was "Preventive Inoculation." He stated his belief that the best explanation of the problem of immunity consisted in considering it as the result of the habituation of the white blood-corpuscles to the poisons secreted by the microbes. "When the virus begins to develop in the body of an animal subject to the malady it forms its poisons, and when the white corpuscles begin to struggle against them their activity is arrested by this toxic production. The microbe continues to develop, and the malady progresses. But in the case of an animal rendered refractory by previous injection of the soluble substances, or by inoculation of attenuated virus, the corpuscles have already got accustomed to the microbic poison, and since the small doses given at the beginning of the cultivation of the virus do not impede their activity, they commence the struggle and devour the parasites."

WE greatly regret to learn that Dr. T. G. Richardson has felt obliged on account of ill-health to resign the professorship of Surgery in the Tulane University, New Orleans, which he has so ably filled for an unusually long period. Two years ago, while travelling in Southern Europe, Dr. Richardson contracted an alvine flux from which he has never since been entirely free, although at present he is much better and has encouraging prospects of recovery.

Upon the acceptance of his resignation his colleagues of the Medical Faculty adopted the following complimentary resolutions:

Whereas, Prof. T. G. Richardson, who has served the medical department thirty-one years—fourteen as professor of anatomy and seventeen as professor of surgery, including twenty years as dean—has urged the acceptance of his own resignation because of ill-health; therefore, be it

Resolved, That Prof. Richardson's resignation is accepted with the utmost regret, this faculty being thereby deprived of its most valued member and its wisest counsellor.

Resolved, That the members of this faculty can never forget that his inflexible devotion to truth, honor, and duty furnished for their guidance the highest and noblest standard of true manhood; that his ability and experience as a teacher placed him in the foremost rank of medical instructors; that his wisdom as dean successfully guided the destiny of the medical department through many years of its severest trial, and that to him more than to any other is due its present prosperity.

Resolved, That while deeply deploring the necessity that withdraws from active service our senior professor, yet our hearts are revived by the hope that time and rest will restore him to health and give to him many happy and useful years wherewith to bless his family and his friends and to benefit all of his fellow-citizens.

Resolved, That Dr. T. G. Richardson is hereby chosen emeritus professor of surgery.

Prof. Samuel Logan, Emeritus Professor of Anatomy, has been selected to fill the chair of Surgery rendered vacant by Dr. Richardson's resignation.

THE Medical Society of New Jersey held its one hundred and twenty-third annual meeting at Asbury Park, on June 18th and 19th, under the presidency of Dr. H. Genet Taylor, of Camden.

THE College of Physicians and Surgeons of New York, at its commencement last week, conferred the degree of M.D. on 166 graduates, the largest class in the history of the College. The total number of matriculates is said to have been 800. Dr. James W. McLane has been elected to succeed the late Prof. John C. Dalton as President of the College.

AT the meeting of the New York Academy of Medicine held on Thursday evening, the plans for the new building were presented and described by the architect, Mr. R. H. Robertson; and, as this was the last meeting before the summer adjournment, after the meeting there was an informal reception and collation.

LADY KORTRIGHT, formerly of Philadelphia, but now living in England, has presented $100,000 to the Presbyterian Hospital at Philadelphia, to found a Convalescents' Retreat. She has also given to the same hospital $40,000 to build a male surgical ward, and $10,000 to endow two perpetual free beds.

THE attention of the Iowa State Board of Health has been called to the important question of river pollution alleged to be due to sewage containing sulphuric acid. The question bears upon the present condition of the Iowa River in the vicinity of Tama City and Marshalltown, due to the poisoning of myriads of fish by the refuse flowing from certain glucose works located at the latter town. The fish thus destroyed have, by accumulating and putrefying, become a nuisance injurious to so large a river-side population as to demand the interposition of the State authorities. The people living along the stream have made efforts to clear it of the dead fish, in the hope of procuring relief, but the masses of them were too great to be removed in this manner. There is rapidly becoming a necessity for general legislation in this country to prevent the pollution of our rivers.

THE Astley-Cooper prize, amounting to $1500, will be awarded in 1892. The question proposed is, "The Influence of Microörganisms upon Inflammation." The papers of those contesting for the prize should be written in English, or accompanied by an English translation, and should be addressed, before January 1, 1892, to Guy's Hospital, London. The prize will not be awarded to two or three working together.

PROF. AUGUST BREISKY, the well-known Viennese gynecologist, died on the twenty-fifth of May, after a protracted illness. His loss will not only be felt in Vienna, but by the medical profession in general. He was a man of rare capabilities, an excellent writer, a lucid lecturer, and a most enthusiastic student. His manner was quiet, unassuming, and gentle, admirably suited for his chosen specialty. Breisky was born in Bohemia in 1832, was graduated in medicine at Prague in 1855; after serving as assistant to Treitz, and later to Seyfert for several years, he began practising, but in 1866 was called to a professorship in the Salzburg school and in the following year he was transferred to Berne where he remained seven years. In 1874 he was elected Professor at the University of Prague, where he remained until 1886, at which time he came to Vienna to take the Gynecological chair at that University rendered vacant by the retirement of Späth.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, May 6, 1889.

THOMAS G. MORTON, M.D., IN THE CHAIR.

DR. CHARLES B. NANCREDE presented the specimen from a case of

EXCISION OF THE OS CALCIS,

which had two points of interest. The first is, that it is somewhat unusual to remove the os calcis in its entirety, and the second is the difficulty that was experienced in its removal. The patient was a child, ten years of age, with the ordinary history of strumous bone trouble. Examination showed that the probe entered the substance of the os calcis. He made the Ollier incision for the removal of the entire bone, and was able to get around it to a certain point. When he attempted to separate its connections with the astragalus, he found bony ankylosis between the two bones, requiring the use of bone forceps. The removal of the bone in its entirety has certain advantages over the removal piecemeal. No fragments are left behind, and if there is any advantage in leaving the periosteum, it can be done better than by the other method. The specimen shows a distinct epiphysial abscess of the os calcis near the attachment of the tendo Achillis. This is the second time that he had performed this operation. The first was done nearly thirteen years ago, and the man is able to walk with perfect ease. All that he needs to do is to fill up the heel of his shoe with a wad of newspaper.

DR. SAMUEL ASHHURST asked if all the caries could not have been removed without the removal of the entire bone? He had in mind several cases in which, under the use of Vilette's fluid, patients have entirely recovered without operative interference. He recalled one case treated in this way twenty years ago who is still perfectly well.

DR. NANCREDE thought that, if modern views are correct in regard to these bone affections—viz., that they are of a strumous nature—that struma and tubercle are the same so far as can be distinguished clinically, it is desirable that we should, if possible, get rid of the entire disease. It is well known that rough attempts to remove tubercular bone may favor an outbreak of acute tuberculosis. If this operation was followed by bad results and subjected the patient to great risks, that would be more in favor of the use of solvents, but such is not the case. The space left is filled with dense fibrous tissue, and the result, both from a cosmetic and useful point of view, is admirable. He had tried solvents, but with very poor results, in other bone cases.

A few days ago, Dr. Simes assisted him with an operation on a femur, where he is sure that the disease is tubercular, and which admirably illustrates the necessity of free removal of bone in tubercular disease. He trephined opposite the opening of an old bone abscess, and cleared out the medulla until firm and solid bone was

reached. The bone was so thickened for two inches above this point that it was agreed that the trephine should be applied there. This was done, and the whole medulla found diseased here also. From this he broke through into still a third caseous space. Attention has been recently called, by Dr. Senn, to the fact that in tubercle of the long bones there may be disease an inch or two above the point indicated by external appearances. Probably one-half of the cases said to be relapses are really insufficient original operations which failed to reach all diseased foci.

DR. WILLIAM HUNT said that ten years or more ago, he made an incision over a sinus in almost the same position as in the specimen shown. He removed a marble-shaped piece of necrosed bone, cleaned out the cavity, and restored the flaps, making provision for drainage. The operation was performed in a boy of sixteen, in good condition, although there was a tubercular history in the family. The wound healed perfectly, and the individual is now in perfect health. He, however, in the main, agrees with what Dr. Nancrede has said. He had seen admirable results from the entire removal of the bone.

DR. SAMUEL ASHHURST then exhibited

A CURVED DIRECTOR TO BE USED IN THE PERFORMANCE OF TRACHEOTOMY.

He said it was a suggestion looking toward a new instrument rather than a perfected instrument. Most surgeons have probably found difficulty in uncovering the trachea with the ordinary director in performing tracheotomy, especially in children where the space between the chin and the sternum is very limited. If we are going to open below the thyroid isthmus, the space which we have is not more than one-half inch, no matter how free the superficial incisions may be. Operating under such circumstances curved directors have been used, and in this way the tissue covering the trachea was lifted. It occurred to him that a director made of a shape similar to the ordinary aneurism needle, and with a groove on its concavity, would facilitate the operation, and he had devised such an instrument. He had used it but once, and that was in one of the deepest tracheotomies that he had performed, the trachea when uncovered being fully one and one-half or one and three-fourths inches below the surface. In this case it worked very well.

DR. NANCREDE asked why it was that the high operation is not more frequently performed in this country. This operation is very simple, and it is impossible to injure any vessels of size. The only thing likely to be cut is the transverse communication between the thyroid veins. The incision is made from about the middle of the thyroid cartilage down to the point where it is proposed to insert the tube, probably about the second or third ring of the trachea. The superficial fascia is then divided, and we reach the superficial layer of the deep fascia. An ordinary eye speculum is now inserted. Then a transverse incision is made over the cricoid cartilage, cutting through the coalesced layers of the deep fascia. We can then work downward, having everything perfectly and safely enclosed in the two layers of the deep fascia, and can insert the tube as low as in the other operation. The low operation may be indicated where we are looking for a foreign body, but in ordinary cases of croup or stenosis from other causes, he thought that the high operation answers every purpose. He believed that the risk of anterior mediastinitis is less after the high operation than after the low.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, May 17, 1889.

THE PRESIDENT, DR. WILLIAM GARDNER, IN THE CHAIR.

DR. FINLEY showed the organs of a patient, the subject of

MALIGNANT DISEASE OF THE STOMACH.

There was a growth on either side of the pylorus and the gastric walls were uniformly infiltrated. The mucosa was not ulcerated, and although the opening at the pylorus was only half an inch in diameter, there was no dilatation of the stomach. The pyloric growth was continuous with a nodule projecting into the hepatic flexure of the colon, causing puckering and moderate contraction of the lumen of the bowel. Microscopically there was inflammatory infiltration of the mucosa with much hyperplasia of the submucous and muscular layers. No cancerous elements had been found after examining a large number of specimens from different parts of the growth. The liver and heart were considerably atrophied, but no metastases were present. The absence of hemorrhage was explained by vomiting always during or after meals. The growth was doubtless of a malignant nature, as the cancerous elements are at times occluded by the fibrous elements of the growth.

DR. STEWART stated that the patient, a woman aged forty-six, had been subject to severe and frequent vomiting since June last, also had pain, but no hemorrhage. Moderate and progressive emaciation had accompanied the affection. A tumor was felt in the epigastrium, but there was no dilatation of the stomach. A diagnosis of pyloric cancer had been made.

DR. BELL exhibited a specimen showing

RUPTURE OF THE BOWEL FROM VIOLENCE.

The specimen was removed from a grown man, aged thirty-five, who was discharged from his employment on Friday, May 3d, with a considerable amount of money in his possession. He was taken up by the police on Saturday for drunkenness. Being unable to pay his fine, he was put in jail, where he was found dead in bed at five o'clock Sunday morning. He was a perfectly healthy man. A coroner's inquest was held and the verdict of "*Death from congestion of the lungs*" found. No post-mortem was held. He having no relatives, was sent up to the Anatomical Department of McGill's University, and there a post-mortem was held by Dr. Finley. A rupture of the ileum was found three feet from the ileo-cæcal valve. There was no ulceration. The eversion of the mucous membrane was well marked. There was also general plastic peritonitis. There were no marks of violence on the abdominal wall. Dr. Bell stated that when the man was taken to jail he complained of severe pain in the belly and could not walk, and he was prescribed for by the jail physician. Dr. Bell also said that he had no doubt that the man had been kicked to death.

DR. SHEPHERD said that this was another example of

the uselessness of coroners' inquests when held by an incompetent individual. In the museum of the medical faculty of McGill University was a specimen obtained a year or two ago from the dissecting-room. The man had been found in an unconscious state in the streets and was brought to the General Hospital where he died in a few hours. A coroner's jury brought in a verdict of death from apoplexy. The coroner refused a post-mortem examination. When examined in the college every rib was found broken, the whole twenty-four, and the specimen is now in the college museum. He considered this state of affairs most disgraceful and dangerous to the welfare of the community.

RIGHT SUBCLAVIAN ARTERY ARISING FROM THE DESCENDING AORTIC ARCH. RIGHT PULMONARY VEIN EMPTYING INTO THE SUPERIOR VENA CAVA.

DR. SHEPHERD exhibited a specimen obtained from the dissecting-room in which the right subclavian artery arose from the descending aortic arch opposite the third dorsal vertebra, passed up and to the right behind the trachea and œsophagus to its normal position in the neck. The recurrent laryngeal nerve did not hook round the right subclavian, but went directly to its place of supply. The right vertebral arose from the right carotid, about the point the subclavian arises. The left vertebral arose from the aortic arch between the left carotid and left subclavian. Dr. Shepherd said that this was a very rare anomaly, but its occurrence was easily explained by referring to the development of the vascular arches. It was an example of a persistence of the right aortic root; the fourth arch, from which the subclavian of the right side is usually derived, having atrophied and disappeared, unless we regard the right vertebral as the inner remnant of that arch. Both fourth and fifth arches having disappeared, the inferior laryngeal nerve would, of course, go directly to its destination without hooking round the subclavian, which, in this instance, is formed by the persistent right aortic root. There was a slight attempt at recurrence at the point the vertebral arose; this inspires the supposition that this vessel was the remains of the fourth arch.

Dr. Shepherd stated that he had reported many years ago in Vol. I. of the *Montreal General Hospital Reports*, a case of double subclavian, that is, a persistence of both the fourth arch and the right aortic root. The vessel representing the right aortic root was of small size and joined the true subclavian in its second portion.

In this same subject on the right side there was only one pulmonary vein of large size which emptied into the vena azygos major instead of into the left auricle. The continued vein was of large size, and hooking round the root of the right lung soon emptied itself into the superior vena cava. Dr. Shepherd said this was a very rare anomaly and he could find only one reference to it, viz., in Henle's *Anatomy*. In the same subject the renal arteries were multiple and there were many muscular anomalies, none of them of any great rarity. The composition of the teeth was peculiar in the upper jaw; the intermaxillary bones appeared to have been poorly developed, and the teeth of the upper jaw proper overlapped the incisors on each side, as if the growth of the superior maxilla had been greater than that of the intermaxillary bones. The patient was a woman, aged thirty, who died in the General Hospital of chronic phthisis.

DR. BULLER reported a successful case of

MULE'S OPERATION OF INSERTING AN ARTIFICIAL VITREOUS.

The patient, a boy aged eight years, was exhibited to the Society. The following is the history of the case: On the 11th of April last the boy was injured by a piece of wood thrown at him in play. Dr. Buller saw him for the first time on the 18th of the month. The eye was said to have been swollen for a few days, but had not caused him much discomfort, and he had been without treatment. The eye was found soft and shrunken, and there was a recently healed wound about half an inch long on both upper and lower lids. The wound of the eyeball had divided the cornea vertically in two parts and extended a short distance into the sclerotic at either end. There was no perception of light. All swelling of the lids had disappeared, and the conjunctiva was healthy; some tenderness and retraction of the scleral portion of the wound seemed to indicate danger to the other eye, and to avert this danger immediate operation was advised. Considering the youth of the patient, Dr. Buller preferred not to enucleate the eye, as he had found that the enucleation of the eyeball in childhood tended to a faulty development of the conjunctival sac and difficulty in ultimately wearing an artificial eye.

The boy being perfectly healthy, and evidently not predisposed to unhealthy inflammatory action, the case was considered one favorable for the performance of Mr. Mule's operation of inserting an artificial vitreous. This operation was done on the following day. The strictest antiseptic precautions were observed. The only difficulty experienced was that of arresting completely the hemorrhage from the under surface of the sclerotic; about fifteen minutes elapsed before the bleeding entirely ceased. The glass globe was then inserted. The smallest size of globe was used, so as to avoid tension of the parts where the sutures, three in number, were introduced. The scleral edges were brought into apposition in a vertical direction, the conjunctiva was united transversely over this, also by three sutures, and the eye again carefully cleansed with bichloride of mercury solution, 1 : 5000. The parts were then washed with iodoform and a pad of absorbent cotton applied over the closed lids; the dressing was kept in place by a firmly applied bandage covering both eyes. The dressing was allowed to remain undisturbed for forty-eight hours, and when removed the lids and orbital tissues were found considerably swollen and tender. This subsided in a few days under the constant application of cold-water compresses, and the case did remarkably well.

Two days ago an artificial eye was inserted, and the appearance of the patient was excellent; there was no sinking-in of the upper lid, and the movements of the eye are almost normal. As yet, the patient is only allowed to wear the eye for a short time each day. The appearance of the eye, the author remarked, was much more natural than could be attained by enucleation or optico-ciliary neurectomy, and it seemed probable that in his case all danger of sympathetic ophthalmia had been removed.

DR. MAJOR read a paper on

ADENOID GROWTHS OF THE NASO-PHARYNX.

He referred to the position advocated by Mr. George Stoker in operating. The patient's head should be on a

much lower level than the shoulders, so that the blood gravitates into and escapes by the nose. The reader of the paper also expressed his continued belief in the relations existing between nocturnal enuresis and mouth breathing. This opinion, first expressed in August, 1884, had since been confirmed by Dr. Ziem, of Danzic, and others. Dr. Magin stated that he had operated on 186 subjects for the removal of adenoid vegetations.

DR. BLACKADER said that since Dr. Major had drawn attention to the fact that enuresis and mouth breathing went together in children, he had closely observed many cases, and his experience did not go to confirm the observations of the reader of the paper. He had occasionally seen the two conditions associated, but the great majority of cases of enuresis observed were not in mouth-breathers.

DR. BULLER remarked that in the majority of cases operated on by him, he had found the fingers sufficient to remove adenoid growths from the naso-pharynx. The anæsthetic he found most convenient and least troublesome, was nitrous oxide gas.

DR. SHEPHERD reported a case of

SUBLINGUAL SEBACEOUS CYST,

in which he had recently operated. The patient was a girl aged nineteen years, who had first observed the growth some three years previously; latterly it had grown very rapidly, and projected considerably into the submaxillary space, causing an unsightly appearance. The girl had been several times insane, and once after the administration of ether, so no ether was given, but cocaine was injected into the skin beneath the maxilla. The cyst was opened in the mouth beneath the tongue, and it was the intention to pass a drain through the cyst and bring it out below the jaw. In pushing the dressing forceps through, it was found that the cyst wall was of considerable thickness, so it was seized through the opening made in the submaxillary region, and with occasional touches of the knife completely removed. The wound healed rapidly, and patient was well within a week. Dr. Shepherd remarked that this form of cyst was of considerable rarity and probably congenital. Being of slow growth, it was not noticed until sufficiently large to push up the tongue or to project externally. The cyst, as in the case narrated, usually contained inspissated sebaceous matter, which had much the appearance of putty. They were frequently mistaken for ranula.

DR. STEWART exhibited a case of

HODGKIN'S DISEASE.

The patient, a powerfully-built man, aged twenty-two years, first noticed enlargement of the glands on the left side of the neck ten months previously; the glands continued steadily to increase in size until the present time, when there was a very extensive infiltration on both sides of the neck and both axillæ. No other groups of glands were appreciably enlarged. Both liver and spleen normal in size. The patient was slightly anæmic, but there was no change in the absolute number of either the white or red blood cells, neither could any change in the size and shape of the red cells be determined. The patient had been taking for the past six months Fowler's solution of arsenic in considerable doses, but without any benefit.

CONGRESS OF THE GERMAN SOCIETY OF SURGERY.

Eighteenth Annual Session.
Held at Berlin April 24th to 27th, 1889.

(Specially reported for THE MEDICAL NEWS.)

(Continued from page 671.)

DR. ANGERER, of Munich, read a paper on

DIAGNOSIS AND OPERATION FOR PYLORIC STRICTURE.

He had made sixteen operations for pyloric stricture due to carcinoma or other diseases, which enabled him to make a few observations that may be useful in a diagnostic point of view. The first step is to find out if the tumor which is felt is united to the stomach or not; for this purpose he has produced an artificial inflation of the stomach by introducing bicarbonate of soda and tartaric acid, according to Ziemssen's method, or again, in filling up the stomach with air by means of a pump. By this process the contents of the distended stomach can be easily made out, and it becomes an easy matter to determine the seat and the relation existing between the tumor and the stomach. In the second place, we must determine whether the tumor is movable or if it is adherent to the neighboring organs. In palpating the tumor we do not find the exact location of the tumor. It is again the artificial inflation which gives us, in this respect, the needed knowledge on the subject; but we must be careful to mark with a colored pencil the contour of the tumor before and after the inflation; we must also not forget that normally the retracted pylorus is always displaced downward and to the right during insufflation of the stomach.

The adhesions of the tumor with the anterior wall of the stomach can be easily diagnosticated. The adhesions with the diaphragm and liver are recognized by the fact that the tumor takes part in the movements of these organs; these are a contra-indication to the operation. It is most difficult to determine an adhesion of the tumor to the pancreas. On a cadaver he has ligated the pylorus, fixing it at the same time to the head of the pancreas, and then produced an inflation of the stomach, and he had found that in those conditions the displacement of the pylorus was hardly apparent, but he observed a special inflexion of the stomach at the left of the pylorus. From a practical point of view he concluded that, after inflation of the stomach, if the tumor disappears, this indicates that its seat is on the posterior wall of the stomach; if the stomach remains immovable, we might admit that the stomach adheres to the pancreas, which is situated behind it. In such cases we must give up resection, but in performing gastro-enterostomy we may still be able to help our patients very much. He has made six times a typical resection of the pylorus; one of his patients, who was suffering from cicatricial retraction, is now in excellent health, and has been so for two years. Two of his operated patients died at the end of three weeks; three died within the first days after the operation; two died from collapse; one from peritonitis. In six cases he performed gastro-enterostomy; one of these patients, who was operated on several months ago, is now very much relieved. In another patient, a loop of the intestine was taken up by mistake in one of the sutures, and the patient died at the end of three weeks.

The other patients died a few days after the operation. Surgical interference in such cases would be more favorable if the operation were done earlier. Ether is preferable to chloroform in these operations.

DR. LAUENSTEIN, of Hamburg, said that we are quite unable to decide, in the majority of cases, what operation is to be performed, before laparotomy is done; whether we are to resect the pylorus, to perform gastrostomy, or gastro-enterostomy; for we do not know in advance whether we shall have to deal with a benign or malignant tumor. He has found that the preliminary washing out of the stomach diminishes the danger of collapse. In one case he observed the evacuation of fifty-four ounces of urine after the washing out of the stomach and the operation. Perhaps a part of the water thrown into the stomach is absorbed by the vascular system and fills it, so that we have an action which resembles the transfusion of a solution of common salt into the blood. If we do not admit that, in such conditions, the stomach can absorb water, we must admit, as an explanation for the abundant diuresis, that it is the result of a nervous excitation. As to the suture, he has given up silk, which has yielded him nothing but bad results. Out of nine patients on whom he performed gastro-enterostomy, two died immediately after the operation, seven lived for five to six months. In nine cases he excised the pylorus, five patients dying immediately after the operation. The results would certainly be much better, should we not allow the diseased condition to advance so far.

DR. SCHLANGE, of Berlin, then read a paper on

INTESTINAL OBSTRUCTION.

Two sets of patients who suffer from intestinal obstruction must be treated medically. They are: First, cases of obstruction due to peritonitis; secondly, cases of intestinal paralysis consecutive to an internal obstruction. For these two groups the medical treatment is preferable to the surgical treatment. The surgical intervention must be kept for any mechanical obstruction of the intestine, but in such cases the diagnosis must be established as soon as possible. Whenever we are able to distinctly palpate the intestinal loops, the abdomen being already swollen, the more right we have to suppose that the intestine is not yet paralyzed. The paralyzed intestine loses its rounded form, and then only do we observe the "barrel-shaped" abdomen. As long as paralysis does not reveal itself by this symptom, laparotomy can be performed without fear. But it is impossible to lay down general rules, for we must direct our steps according to the symptoms of each case. In a grave case of peritonitis, one operation only could be performed, and that is enterostomy, which could save the life of the patient. If we believe that the wretched state of patients is produced by the toxic ptomaines formed in the intestines, we must be sure to get them away, and, if necessary, to make several fistulæ instead of one, to obtain a complete elimination of the intestinal poisons.

DR. FISCHER, of Breslau, then read a paper on

TREPHINING FOR CEREBRAL TUMOR.

He related the case of a patient who, in 1880, suddenly developed epileptiform attacks, with paresis of the two arms. In 1887 he had aphasia and severe headache. The patient was trephined, but no tumor found. After the operation the patient's state was ameliorated, and the paresis of the arms disappeared. But, two months later, new epileptiform attacks set in, followed by paralysis of the upper extremities and the right foot, with violent headache. He then trephined again, and came across a tumor, which he immediately extirpated with his fingers; the wound was then packed. But, some time afterward, the patient again began to suffer from headache, and a tumor appeared at the point of trephining; the patient died comatose three months after the last operation. The tumor was a round-cell sarcoma.

PROF. HORSLEY recommended always the removal of a large piece of bone, so as to be more sure to fall upon the tumor. The tumor must be removed with the lancet, never with the curette or thermo-cautery. The essential part is to diagnose the seat of the tumor and its kind as early as possible. He did not admit the cure of cerebral syphilis by iodide of potassium. This is why he always resorts to trephining in cases of cerebral syphilis when, after a month's treatment by iodide of potassium, he obtains no result.

In Jacksonian epilepsy we often find cerebral lesions, and in such cases we must not use the internal treatment for a long time; it is better to resort to an explorating trepanning. In idiopathic epilepsy, with localized convulsions in certain regions, the cranium must be opened, the motor centre of the affected region found. The faradic current will help us to determine whether or no we are on the affected centre; if so, we should resort to incision immediately.

PROF. TRENDELENBURG, of Bonn, described the following method for the

CORRECTION OF NASAL OBLIQUITY

due to a fault in the osseous vault of the organ, and not in the septum: He first makes a bilateral incision, starting from the wing of the nose to the eyelid; secondly, an incision of the nasal bones, so as to immobilize them. The operation is a simple one, and gives satisfactory results.

DR. LAUENSTEIN read a paper on

TOTAL EXTIRPATION OF THE DISEASED CAPSULE OF THE ARTICULATION OF THE KNEE, WITH A PRESERVATION OF THE CROSSED LIGAMENTS.

He had operated by this method on a case of arthritis deformans of the knee, accompanied by fever and pains, a month ago; in the articulation he found rhiziform grains. Another patient, who was operated upon two years ago, has preserved good movement of the leg. The preservation of the crossed ligaments is for the purpose of saving the mobility of the joint.

PROF. KOENIG did not believe with Prof. Lauenstein, that the crossed ligaments of the knee play the important part he attributed to them, but we must feel ourselves fortunate to be able to cure a tuberculous arthritis of the knee, even if we must sacrifice the crossed ligaments.

DR. PETERSEN said that in a case in which, two years previously, he had extirpated the crossed ligaments, he found them in part reformed.

PROF. RYDYGIER presented two patients suffering from

RHINOSCLEROMA,

which is rare in Germany, but more common in Poland. This affection is constituted by a chronic inflammation,

cicatricial alterations, and nodular vegetation. This disease is due to a bacillus, cultures of which he presented. No curative treatment seems to exist for this trouble.

PROF. CREDÉ, of Leipzig, then read a paper on

THE SURGERY OF THE GALL-BLADDER.

He had made five operations on the gall-bladder during the past two years, every one terminating favorably. His first operation was made in two divisions, the others in one. If by detatching the gall-bladder from the inferior surface of the liver, a serious hemorrhage is produced, he does not hesitate to cauterize the liver with the thermo-cautery. He had observed that during convalescence his patient had a very surprising appetite and yet diminished in weight. A physiologist has observed the same phenomenon in dogs whose gall-bladder he had extirpated.

This great increase in the appetite is explained by the fact, that after the extirpation of the bladder, the bile flows continuously into the intestine, because there is no longer a reservoir which in the normal state throws an increased quantity of bile into the intestine during digestion. At this time there is, after the extirpation of the gall-bladder, not enough bile thrown into the intestine to produce an emulsion of the fats and render them absorbable, so that the greatest part of them passes out in the feces. After a time nature will replace the extirpated bladder by dilating the ductus choledochus, to form a sort of diverticulum, and then nutrition becomes normal again, for the fats can then be emulsified, and, consequently, absorbed.

The operations of the future, according to his experiments will be: The extirpation of the bladder if it is diseased. Ideal cholecystotomy, to take away the calculi which are in the way of the function of the bladder, while it is itself not diseased; the bladder is opened and the foreign bodies removed, the organ is then carefully sutured and returned into the abdominal cavity.

DR. THIEM had performed laparotomy on a patient to remove a tumor; when the extirpation was completed, he found in his way a second tumor, which on close examination proved to be the gall-bladder filled with calculi. He removed the organ, and the patient recovered rapidly and is well.

PROF. LANGENBUCH, of Berlin, thought it very difficult to lay down rules in regard to such operations, although he had made about twenty such operations. He insisted on the fact that we must not rely too much upon palpation as being a certain method to diagnosticate a dilated gall-bladder filled with calculi; the exploratory incision only will determine exactly with what kind of tumor we have to deal. In palpating this region, the external border of the large rectus muscle is apt to lead us into error in diagnosis. He operated on patients only in whom a disease of the gall-bladder is absolutely chronic, and who suffered for a long time from severe hepatic colics. In other subjects he prefers the internal treatment, which in many cases gives very good results. The statistics of such operations is not a very remarkable one or satisfactory as regards final results, but we still are unable to give a definite opinion on the subject.

The total number of cholecystotomies reported amount to 73 in number, with 11 cases of death, 46 complete cures, 16 incomplete cures, with a persistent biliary fistula. Out of 24 personal operations, 2 died from intercurrent disease—that is, 1 from disease of the brain, and the other as a result of the biliary calculi; of the 22 remaining cases, 2 have died as a result of peritonitis, the others were cured.

PROF. KUESTER said that whenever these patients have not been too stout, he had been able to make a correct diagnosis by palpation alone, without an exploratory incision. The ideal cystotomy, followed by buried sutures, deserves to be recommended.

PROF. LANGENBUCH said that an ideal cystotomy presents a very serious danger. The ductus choledochus reacts to any excitation in a very remarkable manner; this is the reason why this canal becomes swollen after the excitation caused by the operation, the tumefaction preventing the free flow of bile, there is a regurgitation of it, and the bladder fills up; finally, the sutures give way, and the bile is thrown into the peritoneum and the patient dies.

PROF. CREDÉ said that this danger is greatly reduced if for several days we have recourse to drainage, and only close the gall-bladder later, when the irritative phase has passed.

PROF. MIKULICZ, of Kœnigsberg, then read a paper on

THE SURGICAL TREATMENT OF PERITONITIS FROM PERFORATION.

To ameliorate the results of the operative treatment of purulent peritonitis from perforation, cases only must be operated upon in which the diagnosis has been correctly and clearly established, and those in which the physical condition is good. In regard to the certainty of diagnosis, the different cases must be distinguished according to the point of departure of the peritonitis; secondly, according to the clinical course of the disease. Two forms of peritonitis by perforation are observed, according to the clinical course of the disease. One of these is diffused from the first, and runs a very rapid course, is very acute, and could be called diffused septic peritonitis. In this case collapse occurs very early, and laparotomy performed on such dying patients is useless. In a second form of peritonitis by perforation, which he has named progressive fibrino-purulent peritonitis, chances of cure after laparotomy are very much greater. This form is recognizable by the fact that it involves only a very limited portion of the peritoneum, from from which it extends to the rest of the serous membrane. Physicians often reproach surgeons for destroying, in performing laparotomy, the barrier which nature has opposed to the extension of the inflammation, and for transforming in this manner a localized or partial peritonitis into a general or total peritonitis. This reproach is sometimes correct, and to prevent it we must be careful not to destroy the fibrinous adherences which form between the visceral and parietal layers of the peritoneum and the serous membrane of the loops of intestines. This is the reason why we ought to make as many isolated incisions as we have foci of inflammation separated from each other by adherences; the pus must be drawn separately out of each one.

He had made eleven laparotomies for peritonitis by perforation: the seat of the operation was five times in the ileo-cæcal appendix, with two cures; in the small intestine five times; in the stomach once. The two

cases of perforation of the cæcal appendix cured were typical cases of progressive fibrino-purulent peritonitis. In one of these patients he evacuated the pus from six isolated pockets by making three incisions; the intestinal loops adhering one to the other were left untouched. For several days the patients must be carefully watched, so as to immediately discover any new formation which might have been overlooked during the first operation. We can be assured of the good results of intervention only when there is no elevation of temperature.

In the first of his two cases there existed between the first and last incision an interval of two weeks. The first incision was made in the neighborhood of the seat of the perforation. After the evacuation of the pus he washed the cavity out with 75 per cent. of sodium chloride instead of using antiseptics. When we find the perforation immediately it must be sutured, but if it cannot be rapidly found we must not spend too much time in hunting for it. The washed cavities are filled with iodoform gauze, and without inserting any drainage-tube, the wound is closed with flying sutures, the object of which is to prevent a prolapse of the intestine during cough, vomiting, etc. The patients are then treated by opium, with the addition of a severe régime.

PROF. KŒNIG, of Gottingen, said that the most important of intestinal perforations are those produced by fire-arms. Up to date, American surgeons, especially, have had more often the opportunity to study such cases. They admit that eighteen hours after the wound has been inflicted death is certain, and that the treatment becomes useless. The prognosis is more favorable when the intervention is early. For his part he had had to treat six cases of perforations due to stab-wounds. In one case a workman received a stab-wound of the abdomen with intestinal perforation. He operated fourteen hours after the traumatism, and his patient was saved.

PROF. ROSENBERG said that in a case of peritonitis by perforation, which remained circumscribed, he had opened the abdomen, as directed by Mikulicz, and one purulent pocket after the other, without even washing them, and the patient was cured.

DR. WAGNER, of Kœnigshütte, said that in a typhoid fever patient who presented all the symptoms of perforation he performed laparotomy eight hours later, and the patient was cured. On the other hand, he had lost a patient who had had several traumatic perforations, but he was only able to interfere eighteen hours after the accident; he sutured three intestinal wounds. The patient died fourteen hours later from collapse.

DR. MANTEUFFEL, of Dorpat, said in regard to intestinal obstruction, when a loop of intestine a certain length becomes strangulated, the phenomena are somewhat different. It is not that part of the intestine situated immediately above the strangulated loop which distends itself; it is the loop itself, and its distention alone produces meteorism. There is another particularity which allows the diagnosis of strangulation of a large loop. In ordinary cases the intestine presents very pronounced peristaltic movements in the parts situated before the obstacle and which are in a distended condition; this, however, does not take place in the case to which he referred. The strangulated and distended loops present no peristaltic motion. In such cases laparotomy is preferable to enterotomy, which is practicable only if the occlusion is not too high up.

DR. STENZEL, of Dresden, had seen two patients who suffered from gastric ulcer, in whom the ulcer terminated in perforation. He operated; the ulcer was excised and sutured. Although these two cases terminated fatally, he thought that laparotomy is necessary in such cases, and that our incision must be made as large as possible.

PROF. MIKULICZ said that simple intestinal obstruction can be diagnosticated from intestinal strangulation by the fact that in occlusion the urine contains much indican; in strangulation only do we find albuminuria.

DR. LESER, of Halle, in a paper on

PRIMITIVE ACTINOMYCOSIS OF THE SKIN.

The usual seat for the development of actinomycosis is in some part of the respiratory or intestinal tract, yet he had observed three patients in whom the parasite of actinomycosis developed in the skin, without there being any other localization of the disease. In the first patient a great number of cutaneous ulcerations could be seen which resembled tuberculous lesions; yet from the depth of the ulceration one could find a thick cord which penetrated through the muscles to the bones; and, on the other hand, there was no adenitis. He had on several occasions curetted the ulcerations by penetrating as deeply as possible, and he cauterized freely; the disease recurred several times, but the patient was finally cured. The second patient appeared to have had acute septicæmia. The third resembled very much the first case. On microscopical examination of the matter from the ulcer one could find very easily the radiated fungi of actinomycosis, yet the balls were not quite round, but oval. The absence of ganglionic involvement and the presence of a cord extending down into the deep parts are of very great diagnostic importance.

DR. ROSTER, of Munich, did not think that such a form of actinomycosis is very rare; there are numerous examples of it in the scientific reports. In nearly all such cases the actinomycosis had developed on operative or traumatic wounds.

DR. KITASATO, of Tokio, Japan, read a paper on

PURE CULTURES OF NICOLAÏER'S TETANIC BACILLUS.

The first description of the bacillus of tetanus is due to Nicolaïer; it has been found in the ground, in the tetanic man, and pure cultures of this bacillus have never been obtained until now. A young soldier died from tetanus; in the pus obtained from his wound the bacillus of Nicolaïer was found. The inoculation of this pus in mice determined the appearance of true tetanus, and in those animals the characteristic bacillus has been discovered; but the cultures always failed, and only mixed cultures could be obtained. Studying these more closely, he found, beside Nicolaïer's bacillus, three species of facultative anaërobic microbes and seven species of facultative aërobic microbes, but none of them could produce tetanus. The tetanic bacillus is a true anaërobic bacillus. After having seen that the mixed culture obtained with the tetanic bacillus contains the greatest number of Nicolaïer's bacilli when it is maintained at a temperature of 97° F., he subjected it for some time to this temperature, and the culture being then in full development, he placed it in a water bath at 176° F. This temperature

kills all adventitious microbes, but allows the tetanic bacillus spore to live. After this partial sterilization, the plate culture is maintained at a temperature of 64° to 70° F., in an atmosphere of hydrogen. In this manner he succeeded in obtaining a pure culture of Nicolaïer's bacillus, with which he was enabled to produce tetanus in rats, guinea-pigs, and mice. The tetanus always propagates itself from the point of inoculation; the regions surrounding this point are always first affected. Nicolaïer's bacillus resists heat very well, and must be exposed for five minutes to a temperature of 212° F. to be killed. A five per cent. solution of carbolic acid does not destroy this bacillus in ten minutes. The most curious fact, however, is, that the bacilli disappear very rapidly in the blood; they apparently produce ptomaines, but this remains to be demonstrated.

DR. HOFFA, of Wurzburg, read a paper on

A NEW PTOMAINE.

Septic infection must be separated from septic intoxication. When we find numerous microörganisms in the blood, we may speak of septic infection, but in other microbian diseases the contrary is the rule; we do not find many microbes, these are very rare, and it is an exception if they are found. In those cases in which bacteria rapidly disappear from the organism, we naturally ask how is this accomplished? They kill by the ptomaines which they produce. He had poisoned a rabbit with bacilli from mice septicæmia, renewing Briéger's experiments, and after having killed it, and ligatured and extirpated the whole urogenital canal, as well as the digestive canal, so as not to extract septic products from these organs, he cut up the remaining rabbit into very small pieces, and worked the resulting mass according to Briéger's method. He isolated in that manner a base, methylguanidine ($C_2H_7N_3$), which is the same poison obtained by Briéger and Bochlisch with bacilli from Finckler-Prior. As methylguanidine is produced by oxidation of the creatine, he submitted to the same chemical analysis a healthy rabbit, who was sacrificed in the same manner as the rabbit killed by the bacilli. He found no trace of methylguanidine. This base is a very violent poison, and one-thirty-second of a grain is sufficient to kill a rabbit. It is this methylguanidine which is produced by the bacilli of the septicæmia of mice, and which kills those animals. Of the bacillus obtained from the spleen he had also isolated a toxic base, the formula of which is $C_3H_6N_2$, which is a different body from methylguanidine.

DR. CORNET, of Reichenhall, then spoke on

INOCULATION OF TUBERCULOSIS ON HEALTHY MUCOUS MEMBRANES.

He had inoculated in dogs Koch's bacillus, so as to be able to study the mechanism of infection which produces tubercular or scrofulous adenitis in man. His experiments had shown that the ganglia of the region through which the virus had penetrated are always involved first; this explains the frequency of tubercular cervical adenitis in man. The parts which surround the neck, the nasal and buccal mucous membranes, the ocular conjunctiva, and the ear, are favorable places for the penetration of the pathogenic germs into the tissues. The ganglia of the side corresponding to the infection are involved first, after which the glands of the opposite side are infected. His inoculations have given him positive results, not only when he had to deal with a spontaneously or artificially ulcerated mucous membrane, but even when he inoculated by simple friction on an intact mucous membrane.

(To to continued.)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, June 6, 1889.

THE PRESIDENT, ALFRED L. LOOMIS, M. D., IN THE CHAIR.

DR. PRINCE A. MORROW read a paper on

PERSONAL OBSERVATIONS OF LEPROSY IN MEXICO AND THE SANDWICH ISLANDS, WITH MAGIC LANTERN ILLUSTRATIONS OF TYPICAL CASES.

He said that leprosy was too often looked upon as possessing only a historic interest, like the plague and other diseases of former times. Unfortunately, however, it could not with reason be so regarded. It was a living reality, and a map representing its geographical distribution showed that it extended over fully one-third the surface of the globe. This general distribution of the disease had, he believed, a very important bearing upon its etiology. It was impossible to give the exact number of lepers at present in the world, but in India alone there was fully 150,000. In Africa and South America it also prevailed extensively, and in Brazil there were said to be from 5000 to 10,000 cases.

The importation of leprosy from a country where the disease was endemic to one where it had previously been unknown, could always be traced to the agency of personal contact. In Central and South America it had been introduced by Portuguese traders, in Mexico by the Spaniards, in Canada by the French; and in Canada there were at the present day three distinct centres of the disease. In our own country, the leprosy met with could be traced to three or four separate sources. In Louisiana it had been introduced by the Acadians after their settlement there in 1758. In Iowa, Wisconsin, Minnesota, and Illinois, it had been introduced by Scandinavian immigrants; and in California and Oregon, by the Chinese. Quite a number of cases had also been met with in Charleston, S. C., and at Key West. Dr. Geddings had personally seen about 20 in Charleston. Dr. Morrow said that he had recently become acquainted with the hitherto unknown existence of the disease in Utah. He saw cases at Great Salt Lake City, and ascertained that it was introduced by natives of the Sandwich Islands who had been brought there by the Mormons.

His own personal observations began in New Orleans, where Dr. Blanc reported the existence of 42 cases last year, these being entirely independent of the lepers of the Teche River district of Louisiana. At various points along the line of the Southern Pacific Railway he also found the disease. In Mexico leprosy has existed ever since the time of Cortez, who established a lazaretto for the subjects of it. This continued in use until about thirty years ago, when it was abandoned; and since that time the cases have been cared for in the general hospitals, no attempt whatever to isolate them being made. Numbers of these people may be met

with in the streets of Mexico at any time. At San Francisco he saw quite a number of cases, six of them being in the pest-house there.

The Sandwich Islands probably offered the best field in the world for the study of leprosy, on account of the comparatively recent origin and the great prevalence of the disease there. We can trace there the influence of certain factors, such as race, climate, environment, etc. Segregation has been secured by the establishment of an isolated leper settlement, and there are now more than 11,000 cases at Morlachi.

It has been regarded as a reproach upon medical science, that so little should really be known of a disease which has existed for so long a time and extended so widely; but it is only within the last twenty-five years that the true character of leprosy has been ascertained. We now know that it is a parasitic disease, and the lepræ bacillus, discovered about the year 1870, by Hansen, presents certain analogies to the tubercle bacillus. This is particularly true as regards its remarkable vital tenacity. Like all specific microbes, it has an elective affinity for certain fluids and tissues of the body. It is met with especially in the mucous membranes, the lymph glands, the liver, the spleen, the testicles, and the connective tissue of the peripheral nerves. It is absent from the blood, the urine, and the physiological secretions, though it is well known that when the lesions of the mucous membrane of the nose break down it is abundant in the nasal secretion. It has been questioned whether it is found in the pathological secretions, but there can be no doubt that it abounds in the vaccinal fluid.

As regards the origin of leprosy, it can be stated positively that the disease never originates spontaneously. It does not attach to the soil, water, or food, but is always communicated from one individual to another, and can always be traced to personal contact. Its period of incubation is a long one. This is variously stated as from three to five years, but in certain instances seems to be from ten to fifteen years. It is a very difficult matter to arrive at the exact period of incubation, because there is no initial lesion and the prodromal symptoms are very indefinite. The progress of the disease is slow, but it almost invariably terminates fatally.

There are certain moot points in regard to the disease, and the first one is as to its contagiousness. This has never been at all questioned until comparatively recent times; but about thirty years ago it began to be doubted. In 1867 the Royal College of Physicians of London made the public declaration that leprosy is not contagious. Ten years ago it is probable that the majority of the medical profession did not accept contagiousness, and so recently as 1885, when the subject was under discussion, there were only three men in the French Academy of Medicine who upheld the doctrine of its contagiousness. When the matter was brought up again in 1888, however, it was proved that quite a number of the leading authorities had accepted this. It is worthy of note that the leading dermatologists of New York have never given assent to the heresy of the non-contagiousness of leprosy.

The history of the disease in the Sandwich Islands affords the most conclusive proof of its contagiousness. In no other way can the rapid spread of the disease throughout the race be accounted for; and at the present day from 5 to 10 per cent. of the native population may be considered lepers. In investigating the disease there one can get at a history of personal exposure in almost every instance. At the leper settlement many of the patients are incapacitated from taking care of themselves, and have to have relatives or friends to look after them who are personally free from the disease when they go there. It has been observed that a very large number of these attendants after a time contract the disease; and the official reports show that out of sixty-six such individuals who were free from leprosy in 1888 twenty-three were found to have it when the next visit was made to the settlement later. Again, it is a well-known fact that a considerable number of foreigners who have lived in the Sandwich Islands have contracted leprosy.

As to the modes of infection, our knowledge is not positive, but in a large number of cases this is probably by sexual intercourse. It seems probable that the disease may be contracted through abrasions of the mucous membrane or skin, and also by means of animal parasites or the bites of mosquitoes and other insects. In the Samoan Islands elephantiasis Arabum has attained a more marked development than in any other part of the world, while elephantiasis Græcorum is unknown; and in the Sandwich Islands, where the latter is so prevalent, elephantiasis Arabum is unknown. In Mexico, however, both forms of the disease are found. In the Sandwich Islands vaccination has undoubtedly been one of the causes of the spread of leprosy, humanized virus being used, and no distinction being made between healthy and unhealthy subjects in procuring the virus. Inoculation of leprosy has been successfully practised in one instance, the subject being a condemned criminal. Dr. Morrow said he had seen one case in which the patient claimed to have contracted the disease from the bite of a leper, and another in which the patient stated that it came from the prick of a pin with which a leprous boy had amused himself by sticking it into his body.

Another moot question is that of heredity. Formerly this was regarded as positively established, and in all ages it has been regarded as the principal cause of the disease. In his personal observations, however, Dr. Morrow said that he found no proof whatever to support the view of heredity. A predisposition to leprosy might be transmitted, as in the case of tuberculosis; but he did not believe that the actual germs of the disease are ever so transmitted. There is not a single case of congenital leprosy on record. In instances of suspected heredity, the child never shows evidences of the disease under the age of three years, and usually not until puberty. In general, the disease develops only in those from thirty to fifty years old. Leprosy, then, is either analogous to late syphilis, or else it is not transmitted at all to offspring. Observation shows that the children of lepers do not become infected unless they are kept in close contact with their parents. Very few living children are born in the lepers' settlement. For some years there were only two; and of twenty-six infants that lived, the report of 1866 shows that nine presented evidences of the disease between the ages of three and fourteen years, while the remainder had continued absolutely exempt from it. It is altogether probable, therefore, that in all cases of suspected heredity the disease is really due to post-natal contagion.

Dr. Morrow then gave an exhibition upon the screen

of a large number of photographs which he had collected in the Sandwich Islands, and in connection with these referred to the different forms of leprosy, and gave a sketch of its clinical history. Among the photographs was one of the late Father Damien, taken only six weeks before his death, and one of the convicts upon whom inoculation was successfully practised—the only case on record. This man, who had been condemned to death, was given his choice between execution and imprisonment for life with inoculation with leprosy. With the criminal's written permission, Dr. Arning inoculated him in September, 1884. Bacilli were found in numbers about the inoculated spot until March, 1885, after which they gradually diminished in number. For several years the result was regarded as negative; but more recently, evidences of infection have developed, and at the present day there can be no question of his having well-marked leprosy.

As to the practical danger of the spread of leprosy in this country he believed that such a danger undoubtedly exists. He said that the disease in its present state here might be compared to a conflagration which could easily be extinguished at first, but which, left to itself until it had gained a certain headway, could not be subdued until after all the material it had to feed upon had become exhausted. In the Sandwich Islands, in 1848, there were but few cases of leprosy, and for twenty years the Government paid no attention to the disease. By that time there were about 250 cases, and the authorities, becoming alarmed, took stringent measures for its repression. A system of segregation was adopted, but, unfortunately, the danger was appreciated too late. Dr. Morrow said he did not believe that a calamity such as had overtaken the Hawaiians was in store for this country; but, at the same time, he thought there was a sufficiency of leprous seed here to stock this or any other country. The only question was whether the soil was favorable for the development of the disease. Any one who believes in the contagiousness of leprosy must assume either that a great danger menaces us, or else that the conditions of our civilization are not favorable for the spread of leprosy.

Dr. Morrow said that in his opinion the danger was not such as seriously menaced the public health, as the disease would spread very slowly, if at all. At the same time it should be borne in mind that leprosy is a disease in which the resources of medical science prove altogether futile, and measures should, therefore, be taken to stamp it out. It is probable that there are more cases in this country now than ever before. The report of 42 cases in New Orleans last year was a surprise to every one, and the propriety of legislative enactment for the suppression of the disease is unquestionable.

DISCUSSION ON THE DANGERS TO BE FEARED FROM THE SPREAD OF LEPROSY IN THE UNITED STATES.

DR. C. W. ALLEN said that his convictions on this question were very decided. Two years ago, in a paper read before the Medical Society of the County of New York, he had contended that lepers should not be admitted into this country, and that those already here should be segregated. There were at the present time, as has been stated by Dr. Morrow, many more lepers in the United States than ever before. Two years ago he had placed the number at 250. This number, he had reason to believe, was too small at that time, and he thought there could be no doubt that there had been a considerable increase since then. When we considered the large number of cases all about us, and the increased likelihood of the spread of the disease from the increasing facilities of modern travel, etc., this question became one that we could no longer shut our eyes to. It was true that thus far very few cases had developed here (almost all being imported from other countries), yet some instances had been reported by Dr. Bulkley and others. Of the 42 cases reported in New Orleans, where no leprosy was supposed to exist, 29 were natives of Louisiana, and 22 of the city of New Orleans. One of these had been a nurse in a hospital where a leper was under treatment for some time. The evidences of the contagiousness of the disease were positive, and as long as a single leper existed anywhere he would constitute a source of danger to those about him.

DR. L. DUNCAN BULKLEY said he regarded this as one of the most important questions ever brought before the Academy. He thought no one could fail to see that whenever leprosy has been allowed free scope it has spread; while, on the other hand, whenever proper measures have been taken in time against its spread, it has been exterminated. There seemed to him a propriety in having the matter agitated, and he thought the least the health authorities could do would be to ascertain the number and condition of the lepers now in this country. He also thought it would be well for the Academy to further discuss the question of the possible spread of the disease and the best means of preventing this. About twenty years ago he saw in the New York Hospital a very bad case of leprosy. There was no cause for it, so far as he knew, and the patient was a man of cleanly habits. Since then he had seen two or three cases every year in New York. He had met with one case in a patient who had never been many miles from Poughkeepsie, where he lived, and another in one who had never been far away from New York. Precisely how they contracted the disease he did not know, but there could be no question that they had derived it from antecedent cases. Leprosy always comes from leprosy. He differed from Dr. Morrow, however, in the opinion that the bacillus lepræ does not exist in soil, water, etc., and believed that it may be left there, like other disease germs. In conclusion, he said he thought it well to appoint a committee to report on the question under discussion at some future time.

DR. GEORGE H. FOX said that the exciting of alarm seemed to him objectionable on account of the false assumption that there has been a spread of leprosy in this country. The cases met with here were nearly all imported, and in spite of the fact that there was no law prohibiting the entrance of lepers, and that no segregation was practised, he believed that the number was at present undoubtedly smaller than at other periods. Some of the cases formerly here had died, and others had left the country. He also knew of one case at least in which the patient considered himself cured; no signs of the disease having appeared for six years. He admitted that there was a slight danger from the lepers still remaining here; but so there was, he said, from hydrophobia. As a rule, the whites of the Sandwich Islands were free from leprosy, and he had yet to learn of an instance of

the spread of the disease in a white civilized country. Its prevalence among the Hawaiians, he believed, was in great part attributable to their uncleanly habits and mode of living. The danger was, of course, greater, the greater the number of lepers; but it was very rare for nurses, sisters of charity, and others in constant attendance upon leprous patients, to contract the disease. All lepers, he thought, should be prevented from landing here, as the paupers were, not so much from the likelihood of their spreading the disease, as because, like paupers, they would be a burden on the community. The popular dread of this disease was unfounded and absurd, and even physicians shuddered at the name of leprosy, while they looked with complacency upon syphilis and tuberculosis.

Dr. H. G. Piffard said that ten years ago he had read a paper before the Academy in which he discussed the question raised to-night. The points for which he contended at that time were, *first*, the contagiousness of the disease; *second*, the segregation of lepers; *third*, that it was the function of the National Government to attend to the matter. Since then his views had not altered. At that meeting a committee was appointed from the Academy to investigate the subject of leprosy in this country, and the committee so appointed performed the work required of it so far as it was possible to do so. It did not succeed, however, in tracing out more than forty or fifty cases in the United States. Many cases unquestionably escaped observation, and there was no doubt in his mind that at the present time there are at least five times as many lepers in the country as there were then. That segregation was necessary was shown by the fact that wherever this has not been practised the disease has increased, not in arithmetical, but geometrical progression. To the question, Whose charge is it to attend to this segregation? he would answer, The National Government. The Government should, in the first place, prevent the entrance of all lepers into the country; and, secondly, induce, as far as possible, all lepers now here to go to properly-appointed lazarettos. It should be the duty of each State to place its own lepers in these lazarettos.

Whether this discussion could have any practical effect he doubted very much. Not until the necessity of taking active measures to prevent the spread of leprosy forced itself upon public attention would anything be done, but that time, he believed, would surely come sooner or later.

Dr. F. R. Sturgis said that he believed that Dr. Morrow was right in stating that there was no immediate danger to the public health from this source, but that it was undoubtedly the duty of the medical profession to call attention to the matter. Up to the present time the evidence of direct inoculation with leprosy had been lacking; but the case of the criminal referred to by Dr. Morrow really seemed to show the possibility of inoculation and further confirm the contagiousness of the disease. It was probable that leprosy followed a course similar to that of syphilis; being more contagious in its earlier than its later stages. As to the bacillus mentioned, he did not think it had been as yet proved to be the cause of the disease, any more than was the case in regard to the so-called bacillus of syphilis. Dr. Fox depended on negative evidence for the position which he assumed; but one positive case was of greater value than all such negative evidence. In our crowded and filthy lodging-houses he believed that there existed all the conditions favorable to the development of leprosy if the contagion was once introduced. As to the comparative risk from leprosy over syphilis, he said he would rather run his chances with the latter, as there was, so far as he knew, no cure for leprosy. Syphilis might be ten times more contagious than leprosy, but leprosy was ten times as dangerous.

Dr. Robert W. Taylor said that every year he saw from one to three cases of leprosy, principally at Charity Hospital. He believed the danger of serious trouble from the disease was remote, and he was therefore inclined to take a more hopeful view of the future than some of the speakers.

Dr. Morrow, in closing the discussion, said there seemed to him but little doubt that the leprosy in the case of the criminal mentioned was positively caused by the inoculation. This was made in 1884, and the four years that elapsed before leprosy made its appearance corresponded entirely with the ordinary incubation period of the disease. It was an important fact, he thought, that the spread of leprosy in the Sandwich Islands had occurred under conditions of high civilization, the state of the population being greatly superior to what it was fifty years before. Dr. Fox labored under a misapprehension in regard to the people there, who are in reality infinitely better off than the great majority of the poorer classes in this country. For one thing, they are very cleanly in their habits and are accustomed to bathe four or five times a day. Yet, notwithstanding their improved condition, the scourge of leprosy had attained the most fearful proportions among them.

In regard to the contagiousness of leprosy, there was one point which offered a possible explanation of the difference of opinion which had existed concerning it. He thought it extremely doubtful if the anæsthetic type of leprosy was capable of transmitting the disease. It was this form, rather than the tubercular, which predominated in India and in Mexico to-day, and in this the bacilli are not found in the external lesions. To his mind the evidences of contagiousness abounded and superabounded. He did not wish to be considered an alarmist, but in regard to this disease he believed that a wholesome dread was better than a false security. By the adoption of active measures he thought it could be stamped out absolutely.

At the conclusion of his remarks Dr. Morrow exhibited under the microscope specimens of the bacillus lepræ which had retained their vitality for a very long period.

NEW INVENTIONS.

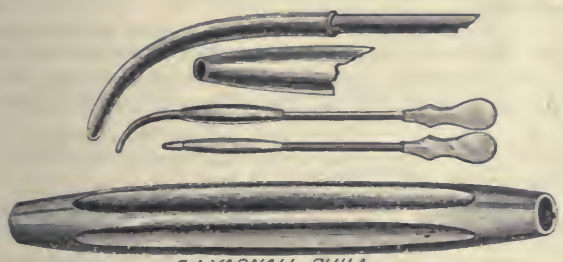
GROOVED BOUGIES FOR APPLYING OINTMENT TO THE URETHRA AND INTERIOR OF THE UTERUS.

By J. NEELY RHOADS, M.D.,
CHIEF OF CHILDREN'S CLINIC, JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA.

For the past two or three years I have been using different ointments on bougies in the treatment of gonorrhœa of long standing and chronic urethritis. The results obtained were generally negative, owing, I think, to inadequate instruments, for the contraction of the

meatus renders it next to impossible to reach the desired parts with the salve on the ordinary bougie or sound, the salve remaining in a large ring around the bougie at the handle upon withdrawal. And the cupped sound contains such a small number of cavities and are arranged so that the urethra is only touched with the ointment in spots in a haphazard way, and being made larger at the handle than at the cupped portion, gives so much pain, due to stretching of the meatus, that it must be withdrawn before the parts are properly reached or the salve dissolved. The ribbed bougie and catheter are subject to the same meatus-stretching objection. The syringe in use for carrying ointment is very inaccurate in its application, and is not, precisely speaking, an ointment-carrier, as ointments must be semiliquid or they cannot be used.

Last fall I had several three-inch bulbs made, such as are used in my pocket-set,[1] deeply grooved on four sides, as shown full size in accompanying cut, and have used



them since with gratifying results. I gave several sets of these to my friends, who speak of them very highly, reporting cases of urethritis cured or benefited, both acute and chronic, specific and non-specific, occurring in both sexes. Several cases of cervical endometritis are also being treated by this method.

I have cured several cases of chronic gonorrhœa of long standing in the male by applying the following ointment to the grooved bulbs:

℞.—Argenti nitratis	gr. x.	
Tr. benzoin comp. . . .	gtt. xv.	
Unguenti petrolii . . .	℥j.	—M.

Making two or three applications per week. After applying the salve I insert the bougie in the ordinary manner, using either the straight or the curved point—preferably the straight. After the bulb passes the meatus I watch the patient's face, ascertaining by the facial expressions which are the most sensitive parts, and then allowing the instrument to remain in such a position that they shall be perfectly anointed.

Now the advantage claimed for this instrument over other ointment-carriers is the operator's ability to locate by it the exact sensitive or diseased spot of the urethra, for, be it remembered, after the bulb of this instrument passes the meatus (the most sensitive part of the normal urethra) the passage is painless if the urethra be not inflamed; hence, the moment the patient flinches we know beyond a doubt that we have reached the diseased part. I have frequently allowed a bulbous bougie of large size to remain in position for ten and even fifteen minutes, the patient walking around my office perfectly unconcerned. We do not expect this instrument to cure every urethritic or endometritic disease, but do hope it will find a useful place as a salve-carrier.

1612 SOUTH SEVENTH ST.

[1] Described in THE MEDICAL NEWS July 10, 1886, p. 54.

NEWS ITEMS.

Proposed Amendments to the Constitution of the American Medical Association.—The following proposed amendments will come up for action at the Newport meeting of the Association.

Amendment proposed by Dr. N. S. Davis, of Chicago:

"The General Committee shall be composed of two members from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy, and Marine-Hospital Service. They shall be chosen by the members registered and present at each annual meeting from each State and Territory, and from the Medical Corps of the U. S. Army, Navy, and Marine-Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose two members of the General Committee, one of whom shall serve one year, and the other two years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee two years. It shall be the duty of the General Committee thus constituted, to organize by choosing annually a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting of the Association, and as often during that week as may be necessary; to nominate, on the third day of each annual meeting, all the general officers of the Assocation (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial Council, and three members of the Board of Trustees for Publication, for election by the Association; to recommend the place and time of holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association, it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily, by selections from the lists of delegates registered as present from the States to which the vacancies belong."

Should this provision be adopted by the Association, the Permanent Secretary should be authorized to substitute the name "General Committee," "for Nominating Committee," wherever the latter occurs in other parts of the Constitution and By-Laws.

Amendment offered by Dr. J. M. Keller, of Arkansas:

"To change the By-Law whereby the officers of the Sections are elected by the Sections."

Amendment offered by Dr. N. S. Davis:

"Strike out the last clause of paragraph VII., relating to individually affixing names to the Constitution and Regulations of this Association."

Amendments offered by Dr. H. N. Moyer, of Illinois:

"There shall be created a Section of Pharmacy and Materia Medica, which shall have its own autonomy, in like manner as the Section in Dental and Oral Surgery. Reputable members of the State Pharmaceutical Associations shall be eligible as members of the same on presentation of credentials from their State Secretary, but shall have no voice in the general sessions of the Association.

"The Section of Surgery shall hereafter be denominated the Section of Surgery and Gynecology.

"There shall be created a Section of Anatomy and Physiology.

"The Section of Obstetrics and Diseases of Women shall be abolished.

"The Section of Diseases of Children shall hereafter be denominated the Section of Obstetrics and Pædiatrics.

"The Section of Dermatology and Syphilography shall hereafter be denominated the Section of Dermatology and Genito-urinary Diseases.

"The Section of Medical Jurisprudence shall hereafter be denominated the Section of Mental and Nervous Diseases.

"The Section of State Medicine shall hereafter be denominated the Section of State Medicine and Medical Jurisprudence.

"The Section of Practice of Medicine, Materia Medica, and Physiology shall hereafter be denominated the Section of Internal Medicine."

Cigarette Selling in New York.—The smoking of cigarettes by boys is likely to undergo a wholesome restriction in the State of New York. The *New York Medical Journal* of June 8, 1889, tells of a law having been enacted by the last Legislature, making it a misdemeanor for dealers to sell cigarettes or any form of tobacco to persons under sixteen years of age. A police order was promulgated on May 31st, giving effect to this enactment.

Leprosy in Russia.—Leprosy, says the *Provincial Med. Journal*, June 1, 1889, is on the increase in Russia. During the last ten years forty-nine patients were treated in the St. Petersburg hospitals, half of whom were natives of the city. The Baltic provinces suffer most from the disease.

Corrigendum.

In foot-note, page 630, *for* "alcoholic tincture of benzine," *read* "tincture of benzoin."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 15, 1889.

NORTON, O. D., *Assistant Surgeon.*—Ordered to the Naval Hospital, Chelsea, Massachusetts.

HALL, J. H., *Passed Assistant Surgeon.*—Detached from the Naval Hospital, Washington, D. C., and granted six months' leave to go abroad.

LEWIS, D. O., *Passed Assistant Surgeon.*—Detached from the Naval Academy, and ordered to the Hospital, Washington, D. C.

BRIGHT, GEORGE A., *Surgeon.*—Detached from the Navy Yard, Norfolk, Va., and wait orders.

MARMION, R. A., *Surgeon.*—Detached from the Receiving-ship "Franklin," and ordered to the Navy Yard, Norfolk.

BERTOLETTE, D. N., *Surgeon.*—Ordered to the Receiving-ship "Franklin."

KIDDER, B. H., *Medical Inspector.*—Ordered to the Naval Academy, Annapolis, Maryland.

WALTON, T. C., *Medical Inspector.*—Detached from the Naval Academy, and ordered to the U. S. S. "Chicago."

BEVER, H. G., *Passed Assistant Surgeon.*—Ordered to the Training-ship "Portsmouth."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 11 TO JUNE 18, 1889.

By directions of the Acting Secretary of War, the following changes in the stations of officers of the Medical Department are ordered:

HARTSUFF, ALBERT, *Major and Surgeon.*—Is relieved from duty at Fort Hamilton, New York, and ordered to Fort Omaha, Nebraska.

BROWN, J. M., *Major and Surgeon.*—Relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Meade, Dakota.

SHANNON, W. C., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Meade, Dakota, and ordered to Fort Yates, Dakota.

IVES, FRANCIS J., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort D. A. Russell, Wyoming, and ordered to Fort Lyon, Colorado.

PHILIPS, J. L., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Lyon, Colorado, and ordered to Fort Crawford, Colorado.

MCCAW, WALTER D., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Crawford, Colorado, and ordered to Fort McPherson, Atlanta, Georgia.—Par. 9, *S. O. 136, A. G. O., Washington, D. C.*, June 13, 1889.

GANDY, CHARLES M., *Captain and Assistant Surgeon.*—Upon the abandonment of the post of Fort Concho, Texas, will report in person to the commanding officer at Fort Clark, Texas, for duty at that station, to relieve Ogden Rafferty, First Lieutenant and Assistant Surgeon, reporting also by letter to the commanding general Department of Texas. Lieutenant Rafferty, on being relieved by Captain Gandy, will report for duty to the commanding officer San Antonio, Texas, reporting also by letter to the commanding general Department of Texas.—Par. 7, *S. O. 133, A. G. O., Washington*, June 10, 1889.

GIBSON, ROBERT J., *Captain and Assistant Surgeon* (Fort Trumbull, Conn.).—Is designated as Medical Officer for the encampment at Fisher's Island, New York, and he will proceed to Fisher's Island, New York, August 1, 1889, and will report to the commanding officer for duty at that post.—Par. 5, *S. O. 133, Headquarters Division of the Atlantic*, June 13, 1889.

By direction of the Acting Secretary of War, PHILIP G. WALES, *First Lieutenant and Assistant Surgeon* (recently appointed), will proceed from this city to the Presidio of San Francisco, California, and report for duty to the commanding officer of that post, reporting also by letter to the commanding general Division of the Pacific and Department of California.—Par. 3, *S. O. 132, A. G. O.*, June 8, 1889.

TEN EYCK, BENJAMIN L., *First Lieutenant and Assistant Surgeon* (recently appointed).—Will proceed from New York City to Fort Leavenworth, Kansas, and report for duty to the commanding officer of that post.—Par. 2, *S. O. 138, A. G. O., Washington, D. C.*, June 15, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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AMERICAN MEDICAL ASSOCIATION.

FORTIETH ANNUAL MEETING, NEWPORT, 1889.

THE PRESIDENT'S ADDRESS.

Delivered June 25th.

BY W. W. DAWSON, M.D.,
OF CINCINNATI.

THE Premier, Mr. Gladstone, after quoting the statistician who estimates the English-speaking people at the close of the next century at one thousand millions, says, "What a prospect is that of many millions of people, certainly among the most manful and energetic in the world, occupying one great continent." This destiny in numbers is startling, but the assertion of Dr. Döllinger, a German scholar, portrays the culture of the future almost as strikingly when he says that "the intellectual primacy of the whole world is certain to fall to the Anglo-Saxon race." Most of that race will be in America.

Looking to such a future the position of the learned professions is certainly conspicuous—their obligations imperious. Medical men should be loyal to this grand destiny.

An eminent modern critic, in discussing civilization in America, while admitting that we have well solved the political and social problems, asks what have we done to solve the human problem, "the humanization of man in society." The struggle in his own country, he asserts, has resulted in "an upper class materialized, a middle class vulgarized, and a lower class brutalized."

We trust that our efforts have yielded better fruit; and since medical science and medical men are prominent factors in society among every people, we may well ask what they have accomplished, what part they have here taken in the solution of the vital problem. In the *Century of American Medicine*, Prof. E. H. Clarke, in his essay, says:

"It is not an extravagant assertion to say, that in all this turmoil, change, and progress (referring to the revolutions and changes in society, religion, and governments for the past century), medicine has kept abreast of the other natural sciences, of politics, and of theology, and has made equal conquest over authority, error, and tradition," and it may be added, has contributed largely to man's comfort, happiness, and advancement. To intensify this, reference need only be made to some of our triumphs—to vaccination, to anæsthesia, to sanitation, the prevention of pestilence, the lengthening of human life. It is, however, more especially the contributions of the profession in America to which attention is desired at this time. What are we doing in the humanization of man, in the work of civilization?

Are our medical practitioners and our medical teachers what they should be? We shall see. Criticisms abound concerning the defects of medical education. Those who do not condemn, often ridicule; these criticisms and strictures are made for the most part, it must be said, by gentlemen unacquainted with teaching, without any practical knowledge of the constitution of medical colleges, or of the toil, devotion, and sacrifice made necessary by those engaged in didactic and clinical instruction.

These censorious addresses are delivered before and to a body of professional gentlemen, the peers of any, some of whom have grown gray in the hard service, others are still in the prime of life, with reputations coextensive with civilization. The rest are young, full of life and enthusiasm, fired with ambition to render loyal service to that profession which they have chosen. Can our system be so defective? The pessimistic orator seems to forget that he is the product of the system of medical education which he is so severely condemning. Some one has said, "By retrospection and introspection an individual, like a profession, may be benefited." In this self-examination we should have but one motive—the elimination of error, the development and support of truth.

Education cannot make all great or equal. It tends, however, to make all safe. In the crucible of private, practical life, evolution asserts itself, and the fittest survive.

In making a retrospect of our profession it may be well to look for a moment at medical teaching in this country.

The way is long between Aristotle and Bichat, and Buckle says that he found no middle-man in this long period; it is darker than it is long. During all this time medicine was not taught legitimately. The renaissance, if it may be so called, began with Hunter and Bichat. No real progress, however, could be made while oxygen remained locked in the silent embrace of all organic and inorganic nature. Priestley, escaping from the religious and political contests, and it may be persecutions, of the old world, came to this country to demonstrate his great phlogiston, oxygen.

Bichat and Hunter restored the proper study of medicine. They represent the turning-point from idealism, speculation, and theory to accurate and close observation. The latter, John Hunter, in 1767 was lecturing and taking students into his own house, and it is curious to know that here, in far-off America, Shippen and his contemporaries in Philadelphia and New York, about the same time or very soon after, began teaching medicine and surgery upon essentially the same plan. Of these men, one who so recently passed away that you can almost hear the sound of his voice and feel his magnetic presence, when speaking of the men who lived at the close of the last and during the early part of this century, said, and justly said, "Not a few of them were the worthy peers of Roux, Abernethy, Crampton, Bell, de Graaf, and Scarpa."

To quote again:

"During the past century, medicine has been enfranchised from superstition, *quasi*-charlatanism, bold empiricism, and speculation, and has developed into a symmetrical science, affiliated with the other natural sciences, studied by the same methods and by the same appliances as they are, and, like them, has been planted upon the solid basis of fact and demonstration."

It may be profitable for us to inquire and determine what part the profession in America has taken in placing medicine upon the high ground which it occupies. What have we done, what are we doing, and what forecast can we make of the future?

At the close of the eighteenth century, Boerhaave declared that all that had been learned up to that time was comprised in three propositions: "Keep the head cool, the feet warm, the bowels open." All other pages in the volume which he left were blanks. Many pages, however, it will not be denied, have been filled during the present century. What have been our contributions? Have they been such as to rank us with the acknowledged conservators of mankind?

In giving attention to this subject, let us for a moment reflect upon the peculiar position of the profession and of medical teaching in this country. For many years (and even now), with few exceptions, medical colleges were the creation of the members of the profession, most often of the faculties composing the schools, without endowment,—indeed, it may be said that almost everything on this continent is endowed, except medical colleges,—without governmental aid, depending for their support upon the sacrifice and money on the part of the gentlemen occupying the chairs. Yes, not only without patronage from the government, but society, from some unknown cause, has ever been against legitimate medicine, depending upon the scientific physician in time of trouble, yet, in the interim, openly supporting all sorts of shams, frauds, and impostors.

Elsewhere, college work is provided for by the State; especially laboratory investigations into the nature and the genesis of disease. Hence, it is not strange that in such departments we may not be so far advanced as our European brethren; but, while they have been engaged in experimental studies, we have developed the practical. But everywhere is seen among us an earnest, a burning desire for higher culture, for more exact and accurate knowledge. Especially is this true of our younger members, and of those about entering the profession.

A movement is being made to concentrate those who have had preliminary advantages—those who enter the profession as college-bred. No objection can be urged to this if it be not too exclusive. All efforts, in fact, to refine our profession without emasculating it, should meet with judicious approval.

THE PHYSICIAN OF THE FUTURE.

Whence are medical students to come? What facilities are now afforded, and what does the future promise for the education of our young men, the class from which the medical student, the "coming doctor," is to be selected? The answer to this question will give some comfort, we trust, to the pessimist, and soothe the restless and at times unreasonable critic. And now as to our resources for this work.

By the last census it was shown that nearly four thousand institutions—schools for higher learning—existed in the United States, and that nearly four hundred of them ranked as colleges and universities. In these are massed, yearly, sixty thousand pupils. They, together with two hundred thousand common or primary schools, in the higher grades of which the curriculum nears that of many colleges at home and abroad a third of a century ago, may be looked upon to supply, year after year, a better material from which medical students will be drafted.

Prof. Charles W. Eliot, in his beautiful and forcible Centennial response, enumerated our educational facilities more generously. He painted our future more hopefully when he spoke of the 8,000,000 children in elementary schools, 250,000 in secondary schools, 60,000 in colleges, with 360,000 teachers to train and develop them.

Every one travelling through the States—especially of the West and South, and those situated in the far-away mountains and on the Pacific—must be impressed with the onward march of public instruction, the gradually increasing general intelligence, and the vast sums that are annually expended for the education of the people.

Public school buildings, by their size, adaptation, and attractive surroundings, give an impression which the most sceptical must feel, a promise of the future which cannot be misread. From such as these scientific medicine must reap a share. Every teacher, every one connected with the examination of candidates for the medical degree, knows—and the knowledge is reassuring—that, year after year, the grade of the medical student is advancing, that the material out of which the practitioner is made is constantly growing better, becoming stronger; in other words, that the preliminary education of our students is steadily becoming more broad and comprehensive. I gave utterance to this view a few years ago, in an address which I had the honor of delivering to the State Medical Society of Ohio. Time, I believe, has confirmed what I then said. This confirmation is seen in our graduates as they go forth to take up the line and battle of life. Are they not the equals of the graduates in other professions, in law and theology? As life advances, are they not the peers of any in all the useful elements of true manhood? Are they not the citizens of best rounded characters, citizens most relied upon by their neighbors in foul as well as fair weather?

Again, in addition to facilities already referred to, the most generous provisions are being made, all over our land, for institutions which will be worthy to be called universities. From these graduates will emerge worthy to rank by the side of those bearing the prized degrees from Oxford, Cambridge, Paris, Heidelberg, or Leipsic.

During the summer of 1888, I witnessed the beginning of a university in California, which in scope and equipment will surpass, probably, any school upon the continent. Should Governor Stanford live to develop his conceptions, that far-off State will have an institution of which not only the Pacific Coast, but our entire country, yes, all civilization, will feel justly proud. It may be so liberally endowed that it will command the best abilities of the world.

Of course, upon such an occasion as this, it would hardly be expected that I should, in detail, refer to the many liberal donations and bequests which have been made by generous citizens for developing higher culture—a more comprehensive education. I will, however, be

pardoned for referring to a few, and I may say, without being too enthusiastic, that the future is aglow with promise. The high-hearted examples which have been set will be followed by other favorites of fortune, until this country may surpass the world, not only in common schools, but in her institutions for broader and deeper education.

In looking at this promising future, may we not hope that before another half century closes students from the old world will flock to this, to sit at the feet of the wisdom here installed? Is it too much to hope that, in the not far-off future, the preliminary education of our students will be equal to that required in the best schools of the world?

Defective as has been much of the material, yet have we not produced some marked results? Our best are equal to the best anywhere; mediocrity always and everywhere finds its own. The poor in medicine, the weak brother, however much we may deplore him, however much we may train him, we have, like the poor, always with us. This is the lot of humanity in all lands, among all people, new or old.

A word as to the physical qualities of "The Coming Doctor." Recently a distinguished foreign traveller, in speaking of our educational facilities and national peculiarities, said: "Students are much calmer than their colleagues in Europe. They don't at all trouble themselves about politics or affairs outside their line of duty, and with the practical sense which animates the nation they try to make the best use of their time. They fight no duels, and it is only for health and recreation that they take part in various sports and games." These remarks apply with equal, in fact, with greater force, to medical students.

It is to the country schools, not the city-bred, that medicine must look for many of her strong recruits. Cities too often emasculate—young men are vitiated by indulgence and vice before they become possessed of serious thoughts, before they realize the elements of a healthy, vigorous life. It is this country-bred, this excellent material which is, as we have seen, yearly growing better and better qualified to enter upon the duties of the profession. From these we must look for the men of distinction, the leaders of the future.

Is this picture overdrawn? One word more. In many of the States of the Union, in addition to the liberally supported free schools and schools for higher education, already colleges have been established through the munificence of the General Government, in which the degrees of A.B. and A.M. may be obtained. They are absolutely free colleges, at which the poorest boy in the commonwealth may receive a classical education. And here you will allow me to say, we cannot insist too strongly upon the necessity of classical education; without it the medical man must ever be at a disadvantage. Without a knowledge of Latin and Greek, sure and distinguished success is uncertain. The student may neglect algebra and the higher mathematics, but let him, by all means, have a liberal knowledge of languages.

At the last commencement of one of our Western schools, "forty per cent. of the graduating class had been admitted on diplomas from literary or scientific colleges. The balance of the class had received from one to five years of academic or collegiate instruction." This college is without endowment—depending entirely upon the learning, devotion, and sacrifice of the faculty.

But to return. Prominent among the States in providing institutions for advanced culture, the great frontier State, Texas, claims a high position. The University of Texas will be one of the most liberally endowed; millions of acres of land have been donated for University purposes. There, in that Empire State, may yet be seen one of the greatest schools of literature, science, and philosophy on the Western Continent. The University of Virginia, projected in the early days of the century, by her great commoner, Thomas Jefferson, has yearly sent forth graduates equal in all the elements of advanced scholarship to those from any school. This may seem high praise, but the records of her alumni justify me. The same may be said of Harvard, Yale, Princeton, Columbia, Cornell, and most of our older institutions. The University of California has already an annual revenue of about $200,000. The Michigan University, with a yearly income of almost a quarter of a million of dollars, has well nigh two thousand students, taught by more than one hundred teachers.

Let us not, gentlemen, be impatient; the influences are already projected which will give us students equal to—up to—the highest standard of preliminary preparation. If we have accomplished so much in our primitive stage, what may we not expect when all our great preparatory works come fully into action?

From this view of the resources from which medical students are to be drawn, and of the liberal preparations and facilities for their culture, we may well ask, what is the profession doing to profit from such advantages?

Some of the classical schools at Oxford and Cambridge were organized as early as the thirteenth century, but the systematic, scientific study of medicine and surgery came long subsequently—not for four hundred years later—about the middle of the eighteenth century. It was first projected in Great Britain, and soon after in our Atlantic cities. Unlike the Old World, our fathers had a wilderness to conquer before progress could be made. When the Pilgrim Fathers left England, reading and writing were rare accomplishments; chimneys in that country had just been invented, and flock beds were luxuries. The adventurers—the emigrants to these shores from that ancient and imperfect civilization—had much to learn, but in the midst of their pitiable ignorance, facing great hardships and pressing wants, they were quick to provide educational opportunities for all. The result of their efforts are apparent—they are before us. Could more have been accomplished in one century?

MEDICAL SCHOOLS.

Our medical colleges now number a few more than one hundred. They may be classed as: (1) Metropolitan, those in large cities. (2) Medical colleges in less pretentious cities. (3) Medical colleges in small cities. (4) State medical colleges. For convenience, however, we may speak of them as Metropolitan and Provincial.

Before speaking more definitely of our medical institutions, allow me to refer for a moment to the proposition, that medical schools in our country have been developed by the labors, by the self-sacrifice of the profession. As previously stated, it may be said that in this country everything is endowed except medical colleges,

schools for teaching medicine. Yes, all financial responsibilities have been and are assumed by the faculties, by men who give every hour not devoted to "earning the guinea" to college work, and in most instances, without pecuniary reward. It is only recently that the wise, the generous, the favorites of fortune, and a few of the States, have conceived the idea of endowing medical schools, institutions where medicine and surgery can be cultivated without the embarrassments of financial responsibility. In the presence of such facts, the work of the grumbler seems indeed ungracious.

In our metropolitan colleges, every physician may feel a just pride; their graduates, most of them, will compare favorably with those educated anywhere on this earth.

The accomplished Dr. Senn, after a liberal experience with foreign schools, said: "There is no question in my mind, that the average American student learns more in one month than the average German student in three. He learns more, not because he has better teachers or better facilities, but he makes better use of his time. I am satisfied that in our last graduating class I had at least a dozen students, who, after studying three years, would pass a brilliant examination in any English or German university. They would have felt at home, even in a dress coat in Volkmann's klinik passing their final examination."

Provincial schools do praiseworthy, yes, thorough work in training young men, not only in rudimentary branches, but in practical clinical studies. Many supplement these by hospital attendance in the great cities, and by post-graduate courses. It is gratifying to know that these organizations are being established in all of the great medical centres.

The advance in medical education is again most distinctly pronounced by a remark recently made by one of our distinguished fellows, an American-bred physician, of whose fame we are all justly proud. In a conversation, Dr. Battey said: "When I began practice thirty years ago, there was scarcely a graduate within fifty miles of my residence; now, however, there is hardly a practitioner in the same territory who is not a graduate, and, year after year, a portion of our young men leave home to avail themselves of clinical advantages, to attend post-graduate instruction."

Could anything show more forcibly the conservative and steady growth of medical culture?

HAVE MEDICAL COLLEGES INCREASED TOO RAPIDLY?

Should they be established in small cities, where clinical material is limited, where it must be comparatively scarce? Before answering this, it may be well to reflect upon the proposition, that in our own country, as well as elsewhere, great achievements have often been made in the provinces, and not always under the shadow of the universities. One of the great operations waited for years for a metropolitan disciple—one to take it up—and that, too, long after the provinces, at home and abroad, had demonstrated its vital utility, its claim upon the scientific and skilful surgeon.

As our population increased from three to sixty-five millions, the demands for medical men were great—colleges increased necessarily. Have they multiplied in undue proportion?

In answering this question, I beg again to quote from my beloved master, Samuel D. Gross, to whom this question had been put. After mature deliberation, he said: "Our colleges are not annually graduating one physician for each county in the States and Territories. This is certainly not exceeding the demand." A considerable proportion of those who graduate never enter the ranks—death and desertion claim a large share. It would simply be impossible for the metropolitan schools to graduate all required.

For the introduction of young gentlemen into the profession, there is a mutual responsibility between teachers and preceptors. In very truth it may be said that colleges do their duty, their very best, with the students furnished by the preceptors. Give us liberally educated young gentlemen, and we will furnish graduates worthy of the degree. Medical colleges, however, do not make the physician. They merely furnish the foundation work; the individual must do the rest. In no place is evolution so marked—the fittest will and should survive.

LABORATORY WORK.

Huxley says: "The microscope extends the realm of pathological anatomy to the limits of the invisible world."

"The intimate alliance between morphology and medicine has made the natural history of disease attain a remarkable degree of perfection."

Dr. George M. Sternberg, the distinguished pathologist, recently connected with the Smithsonian Institution, in referring to some of the laboratories established in this country for the study of pathogenic microörganisms, says: "It is no longer necessary to go abroad for instruction in this department of science, since the laboratory of Prof. Welch, in Baltimore, and the Hoagland Laboratory, in Brooklyn, afford facilities which are unsurpassed by any of the laboratories of the old world."

Indeed, it may be said that provisions for the study of pathogenic microörganisms are established in most of the leading schools of this country—in New York, Philadelphia, Boston, Baltimore, and the cities of the West and South.

You will pardon me for mentioning some of the investigators.

Johns Hopkins University has for its director Professor William H. Welch. The Hoagland Laboratory, of Brooklyn, New York, established through the generosity of Dr. C. N. Hoagland, has been built and equipped in the most complete manner for research work in bacteriology and experimental pathology. Professor George M. Sternberg is to be the director of this advanced institution.

At the University of South Carolina, Dr. Meade Bolton, who has had the best of training at Berlin and Göttingen, is at the head of a laboratory. Dr. H. C. Ernst has the direction of a Bacteriological Laboratory in connection with the Harvard School of Medicine.

Prof. James T. Whittaker, who had the honor of being the first American student of Robert Koch, demonstrated, at Cincinnati, in 1882, the tubercle bacillus, after a lecture upon the subject before the College of Physicians of Philadelphia. In 1887 the Medical College of Ohio imported a complete outfit for bacteriological study. The conductors of the laboratory, Drs. Rachford, Cameron, and Freeman, during the first course, had the oppor-

tunity of doing some good work in the discovery of the typhoid bacilli in the reservoir supplied from the Ohio River, then at a very low stage. This discovery led to the general adoption in the city, as advised by leading physicians, of boiling all drinking water, a plan which undoubtedly limited the spread of the disease.

Among others may be mentioned Dr. Prudden, of the College of Physicians and Surgeons, New York; Dr. George A. Kemp, of Brooklyn; Dr. Mall, of Baltimore; Dr. Booker, of the same city; and Dr. Frank S. Billings, of Lincoln, Nebraska.

One of the earliest, most accomplished and accurate cultivators of microörganisms is Dr. James E. Reeves, of Chattanooga. His technique is singularly beautiful. Many of his preparations are to be found in the National Museum.

Dr. Victor C. Vaughan and Dr. Heneage Gibbes conduct laboratory work at Ann Arbor.

The University of Pennsylvania has at the head of its laboratory Dr. John Guitéras, a pathologist who has distinguished himself in the study of the origin and spread of yellow fever.

Thus it will be seen that in all parts of our country—East, West, North, and South—laboratories are being established for original work.

HISTORY OF MEDICAL TEACHING IN THIS COUNTRY.

A brief review of medical teaching in this country will be pardoned—it may be profitable—it will certainly illume the present, and may be somewhat of interest to the future.

The first medical lectures were delivered by Dr. John Morgan and William Shippen, in 1767, in Philadelphia. Dr. Rush and Dr. Physick soon after participated, and in 1768 the medical department of the University of Pennsylvania was organized; that great school which is steadily advancing to the highest station. Philadelphia was a small, a provincial city at that time; now she is only second to the great metropolis in numerical strength, but second to none in the thorough equipment of her medical schools.

Contemporaneous with Philadelphia, an organization was projected for medical instruction in New York. In 1767, the first steps were taken which resulted in the school, ever since known as the "College of Physicians and Surgeons," one which challenges the confidence of all. The medical colleges of New York, endowed, not by government, but by her public-spirited citizens, have won the honors which they wear so well.

In 1785, the first school was organized in Boston. The chairs were four, and the session four months. Harvard is the outgrowth of this humble beginning of that provincial faculty.

In 1800, the first medical instruction was given in Baltimore; since then, the schools of Maryland have occupied a deservedly high position. Recently one of her citizens made an endowment by which the "Johns Hopkins University" will be equipped for the most thorough work, experimental work, laboratory studies, a range and grade of investigations *en rapport* with the spirit of the times.

This great benefactor has also given to Baltimore one of the most completely equipped hospitals to be found on this earth.

The great Mississippi valley was yet unknown, but soon after the close of the Revolution emigration began, and, as early as 1799, Dr. Samuel Brown organized the medical department of Transylvania University. Dr. Benjamin Dudley effected a reorganization in 1819. This school, after many prosperous years, having graduated men who acquired distinction at home and abroad, was transferred, or, rather, most of the faculty removed to Louisville, when and where the University of Louisville was founded.

During the early part of the century, medical schools were organized in several of the Eastern States, usually under State or church patronage. Most of them exist to-day. Some of the most distinguished men in our profession have been associated with these institutions.

As the West and South were peopled, medical schools were established in cities and promising towns. As early as 1819, Dr. Daniel Drake secured the charter of the Medical College of Ohio, and had it legally connected with the City Hospital. The faculty constituted the hospital staff, the members of which were required to give clinical lectures—the first forward step on the continent in blending didactic with clinical instruction.

The physicians in South Carolina began medical teaching in 1823, and those of Louisiana in 1835. In both of these States schools of high character have been maintained.

In closing this very brief review of our colleges, metropolitan and provincial, I think it may be said that year after year the standard of the doctorate is being elevated, preliminary examinations and graded courses are being adopted; the smaller schools, to which most blame is attached, whether justly or not, with a disregard of self-interest seldom seen, are yearly reducing the size of their classes by insisting upon higher preliminary education, by extending the curriculum and by graded instruction.

MEDICAL JOURNALS.

Medical journals, metropolitan and provincial, are the heralds, the vanguards of medical progress, the exponents of professional culture. They are closely associated with the colleges in education and in post-graduate instruction. In them appear the best thoughts of the best men; they constitute the great forum of intellectual combat; upon their pages pretension is analyzed and estimated, and worth recognized; that which is new or original is endorsed, or rather encouraged; it is only the plan, the original investigation which is endorsed; the results, the conclusion must be subject to the crucible of test and trial.

The London *Lancet* and *The American Journal of the Medical Sciences* were almost contemporaries—who can overestimate their value—their influence in medical progress. While our journals, both metropolitan and provincial, are freighted with the best thoughts of the best men, yet, it must be confessed that trash and light material—very light material—may be found in all, but the reader, nevertheless, will find much that is not worthless.

The Journal of this Association has won its way to its present high position by its dignified course and its essentially scientific character; but has it reached its full usefulness? A learned and distinguished author, and a highly prized fellow of our Association, at my suggestion, gives his views upon this question.

Dr. Comegys says: The undertaking, seven years ago,

to establish a weekly journal, was a happy conception and has been carried on as successfully as the resources of the Association would admit. To Dr. N. S. Davis unstinted praise is due; proportionate praise is also due the Board of Trustees with whom he has been associated.

"A large number of members believe that it is entirely feasible to enlarge the Journal and give to it increased capacity for usefulness; indeed, that it should be made more fully capable, as the organ of the Association, to assert and maintain the dignity and power of the medical profession as one of the greatest factors in civil life; that to it society must ultimately turn to find not only the resources to assuage the distress arising from the diseases and accidents of life, but for its protection from all those evils that fill the land with apprehension of desolation and ruin.

"We know to what an immense extent we can estop the approach of the pestilences that desolate lands, and which menace, through the paths of commerce, the whole area of civilization. We know what we can do to improve the homes and places of labor of the lower and toiling classes of cities and other crowded centres of population. There is nothing, indeed, connected with our own social state, which the medical profession should not supervise and which it should not have the power to control. A great organ is necessary to enlighten, strengthen, and lead the profession in all directions, to bring to bear its beneficent agency for the correction of the terrible evils of society.

"Such a journal must be made encyclopædic in character, in which can be found the proceedings of distinguished societies of this country and of Europe, the work of the chief actors of medical progress in all parts of the world. Twelve thousand subscribers would give $60,000, this would insure $40,000 from advertisements, making an income of $100,000, which would sustain one of the grandest journals in the world.

"The *British Medical Journal* in fifteen years has fourteen thousand subscribers and an income of $125,000. May we not hope to reach this? and when we do, who can compass the good which the American Medical Association will accomplish?"

THE MEDICAL AND SURGICAL LIBRARY AND MUSEUM AT WASHINGTON.

Another important factor in professional culture is the great Library and Museum at Washington, evoked by the efforts of an American-bred physician, John S. Billings. The Library of the Surgeon General's Office of the Army now contains 92,000 volumes and 137,000 pamphlets, being the largest collection of medical literature in the world, and it is not only the largest, but the most useful. This is because it has an Index Catalogue, which not only shows what the Library has of the works of any author, but, for any given subject, indicates all the original articles in journals and transactions, as well as the books and pamphlets which relate to it, and thus forms a medical bibliography which saves an enormous amount of time and labor to those engaged in medical literary research. This catalogue is being published at the rate of one volume a year; nine volumes have been issued and six more will complete the work. The Army Medical Museum is a great pathological school, and now contains over 15,000 specimens, being one of the largest museums in the world, and richer than any other in illustrations of military medicine and surgery. This Library and Museum are national in scope and character They have at last been securely placed in a fire-proof building well adapted to their needs, thanks to the efforts of the medical profession, and we should see to it that they are maintained and increased to the highest degree of completeness and efficiency.

The medical profession asks very little of the general Government, but it does ask that these two institutions shall be made as useful as possible. The number of copies of the Index Catalogue which Congress authorizes to be published is hardly sufficient to meet the demand, and the repeated requests for authority to publish an illustrated catalogue of the Museum for distribution to the profession, have not yet received any attention from Congress, and it is time we took the matter in hand. When we, who are the family physicians of our senators and members, say to them, that this is the thing that ought to be done and must be done, it is pretty certain that it will be done. There is nothing that will do more to promote higher medical education, to stimulate research, and to crown American medicine with honor, than to give ample means to this great Library and Museum to obtain materials and to publish widely the results.

MEDICAL AND SURGICAL HISTORY OF THE WAR.

This matchless record of military medicine and surgery is a marked testimony to the profession of our land. Let us for a moment compare it with similar work elsewhere. After the great Crimean war was over, its experiences were collected, weighed, and analyzed; how strange, in the light of present surgery, and in what contrast with the lessons taught in our great conflict, is the record of McLeod upon one vital operation—trephining for fractures of the skull. In his *Notes on the Surgery of the Crimean War*, that distinguished gentleman says:

"If any patients were lost from not having been operated upon, I never saw any of them, but I do know of some patients who died because they were subjected to operation."

And what a fearful commentary upon the military surgery of that campaign McLeod makes when he writes:

"Thus it would seem as if severe fatigue, irregular, and it might be intemperate diet, are less injurious to men with fracture of the skull than the probings, pickings, and trephinings which form the more orthodox and approved practice."

It may be truly said that the judicious use of the trephine during the conflict between the States, supplemented after the war by American surgeons, especially by one of our fellows, Prof. W. T. Briggs, led up, led surely, safely, and steadily to the achievements of Victor Horsley, the master of us all in brain surgery.

MEDICAL SOCIETIES.

Our medical societies, local and national, are great factors in professional progress. Not alone are they valuable for their social opportunities, but in and through them a vast amount of valuable matter is presented.

MEDICAL LITERATURE.

Had Sydney Smith been a physician and given to reading, he would not, even in 1820, have asked the

questions, "Who reads an American book?" "What does the world owe to American physicians or surgeons?"

This reverend gentleman, this famous critic, could not have heard of Ephraim McDowell, whose brief paper, detailing his first three cases of ovariotomy, published in the Philadelphia *Eclectic Repertory* in 1817, was of more value, did more for the conservation of human life, than a score of ordinary publications. Our first half century may be poor in books, but it abounded in strong, brave, conscientious and devoted men, who, with the most limited resources, accomplished the grandest results. They compelled success because they deserved it.

The ink was hardly dry upon that cynical pen when anæsthesia was presented by the profession, so poor, as he supposed, in valuable works.

But what country or age can match, in great contributions to the relief of the suffering, McDowell, Sims, Bigelow, Sayre, Battey, and Emmet, and that trinity of men —Wells, Morton, and Jackson—who gave anæsthesia to the world. Think of anæsthesia and of its influence upon the progress of medicine and surgery. But yesterday a writer in the London *Lancet* gave a graphic history of its reception in London; how the great Liston, having a patient who could not nerve himself up to the point of consenting to have a limb amputated for strumous disease of the knee-joint, decided that "if the insensibility could be insured and maintained for one minute, he would amputate." Reflect for a moment on the hesitancy of the great surgeon of University College Hospital, as he stood by the side of that patient; he could hardly believe the novel report as it came from over the sea. Willing and anxious as he was to operate, he hesitated to urge the poor patient to make the experiment—experiment it then was. In a week, however, it was legitimate practice all over the world.

The heart of every American physician is filled with thankfulness when he remembers that in the providence of God this great boon to humanity was vouchsafed to his country. The very ground upon which stands the Massachusetts Hospital is sacred to us all. Associated with the discoverers must ever be the name of Dr. Hayward, who performed the first operation under the strange Letheon. Previous to this, operative surgery was slow, tedious, and almost cruel. Contrast it to-day with what it was previous to 1847. What grand strides it has made under the direct support of anæsthesia and its almost equal co-laborer, antisepsis; the great cavities are invaded, and invaded safely; the abdomen has become a familiar field, and who can forecast the surgery of the brain?

Since Emmet's operation we hear no more, neither in this country nor abroad—neither in London nor Berlin, neither in Paris nor Vienna—of that culmination, that *ultima thule* of ignorance, "ulceration of the os." What a disgrace that term was to the surgery of the world?

The ignorance of diagnosis was only surpassed by the cruel treatment which it evoked, the application of caustics to the tender everted membrane of the cervical canal.

Has the operation, Bigelow's litholapaxy, the crushing and evacuation of a stone at one sitting, been truly estimated? Its adoption in one celebrated case might have changed the destinies of Europe. Previous to Bigelow lithotrity was an uncertain and, in most hands, a cruel operation: "Crush all possible at a short sitting, and allow the fragments to pass *via naturales*." Bigelow realized that if anæsthesia is safe for two minutes, it is safe for two hours or more; hence, he said, "Crush it at once, and evacuate the bladder by an aspirator." The operation, in proper cases, is as practical as the description is brief and efficient.

The accomplished Edmund Owen, M.B., F.R.C.S., upon calculus says: "With rare exceptions only two operations are now practised—suprapubic lithotomy and crushing with evacuation at a single sitting." A high compliment from an eminent authority.

The story of Ephraim McDowell, though so often repeated, humanity never tires of hearing. To us he belongs, and to us only; we cannot share his fame with another; we would not if we could. Who can measure the relief which his operation has bestowed upon suffering woman?—not only woman, for his was the genius which opened the way for laparotomy in both sexes.

CLOUDS.

What has been accomplished by the profession in this country, self-reliant and, as we have heretofore said, without governmental or social support, is certainly worthy of congratulation, and gives ground for hopes of a rosy-hued future; but alas! there are some dark clouds to be seen—some spots on our sun of promise! Have we inherent defects in our organic law—our *esprit de corps?*

Upon the face of our promising future some omens of evil appear, indications which look not up but down, not forward but backward, not to the elevation but rather toward the degradation of our profession. Heretofore we were an organization into which no species of fraud could enter, pretension, ignorant pretension, stopped at the door. No *ism* or *pathy* was admitted; something more than a diploma, "a legal diploma," was required—a clean bill of conduct, free from false assumption, assumption of universal knowledge, of specific remedies, of imaginary potencies; in fact, of all shams and false claims, a guild in which there was the greatest freedom for the truth, the largest liberty for the right. No vendor of secret remedies was admitted, because of the ignorant presumption in which they were conceived and propagated; but, alas, that we should have fallen upon the evil times when "patented processes" are attempted, when "processes" of valuable remedies are kept secret. These remedies with "patent processes" are in daily use. This is one of the dark spots in the picture. It came in with the "legally qualified practitioner." What is antipyrin, antifebrin, salol, sulphonal? The reliant patient may well propound such questions. Who can answer them? Are we relegated at one fell move back into outer darkness, the associates of vendors of "secret remedies," of "patented processes?" What higher is a "patented process" than a "patented nostrum?" The profession was never so low as to countenance the latter; but have we not in these later days become propagandists of patented, and, therefore, secret processes?

LAWS FOR THE REGULATION OF THE PRACTICE OF MEDICINE.

It may be asked, Has the standard of professional excellence been raised by laws enacted in many of the States for the regulation of the practice of Medicine?

These laws banish the poor creatures without diplomas, but make respectable, *quasi*-respectable, all who have so-

called diplomas from whatever source. Shams and pretenders are in this way made "legal," and claim whatever protection and recognition that term may give or imply. A chartered institution, in most of the States, represents a formal application for incorporation to a Secretary of State, the signature of that officer, and nothing more. The process of graduating from such—the faculty often consisting of but a single person, or a man and his wife—would hardly be called a farce; the subject is too serious. "Legally qualified!" think of it; and yet this legally qualified creature will claim and expect to meet the highest and the purest. Is this an advance upon the requirements of the Code, the morals and *esprit de corps* of which have never been questioned?

What has been the effect of these diplomas? Have they not tended to make vice and presumptuous ignorance respectable?

Let us be true to ourselves; pitch cannot be touched without defilement. Our Profession must be kept pure, or else it will degenerate and sink to the level of a trade.

In State Boards of Health, by the side of physicians, we find these "legally qualified" practitioners. Where lies the responsibility? Is it with us? Our self-examination on this subject should be searching. If we have failed in our duties to humanity, let us be swift to acknowledge it, and be still more eager to correct our error.

The presence of this body of professional gentlemen, representing our entire country, furnishes sufficient argument for the existence of a National organization; one embracing the virtue and strength of the profession, one to which all questions should be referred for just and final decision. Questions will arise, differences of opinion will occur between honest men. We must have some tribunal, some body, to which these questions, these differences of opinion, can be relegated for solution. The golden rule is a principle, not a law; it cannot interpret itself. Its application to life in detail must be defined. In this respect we are like other men and other organizations. Our morale, however, is higher; it has a zeal, a spirit, a hope and confidence peculiarly our own. If we would have our organization pure, we should make it strong—strong enough to eliminate all that is not true or truthful. We are mortals; not transcendentalists. We cannot live as the commune. We must have laws; remembering always that they are not made for the righteous, but for the sinner. "They that be whole need not a physician, but they that are sick." I will not attempt to defend the ethics of our profession. It would be a poor compliment to your intelligence, to your manhood; for there is not a clause in our Code which a gentleman could not cheerfully obey. Organize whatever we may please: Associations of Specialists, of Physicians, of Surgeons; Academies of Physicians; Congresses of Physicians and Surgeons; but let us not lose our loyalty to this parent Association. Projected almost a half century ago, when medical societies were few, it has annually convened—in the North, in the South, in the East, in the West, and in the far West, on the Pacific shore; if you will examine its yearly roster, you will find that it embraced the best and the wisest. Almost all who were present at the beginning are at rest; their places have been filled by worthy men. Thus, yearly new life—new men being added—this Association cannot grow old.

"When a people hold their lives and property as nothing, the enemy has already suffered defeat." So, too, when virtue will not compromise with vice, the victory, although it may be long delayed, will surely come.

Of the American Medical Association, let us unite in saying, *esto perpetua*.

THE ADDRESS IN SURGERY.

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Delivered June 27, 1889.

THE surgery of the century has been of three periods, the preanæsthetic, the anæsthetic, and the modern one. Operative brilliancy characterized the first. The suffering inseparably connected with the use of the knife and the nervous depression resulting therefrom was to be limited chiefly by celerity of execution; hence the swift-moving hand was an essential part of the equipment of the fittest surgeon.

When in the amphitheatre of the Massachusetts General Hospital, "the problem of surgical anæsthesia was definitively solved," a new period began. Pain was no more, and it was permitted to examine earlier and more thoroughly, to remove more extensively, and to operate successfully in regions previously altogether, or in great measure, beyond the reach of art. For twenty years or more, progress was in the line of diagnosis, of development of new and better methods of operating, of extension of the range of surgical interference. Time was no longer an element of prime importance, and the work was regarded as quickly enough done when well and thoroughly done—too much so, in fact, for not seldom the best interests of the patient have been jeopardized by unnecessary delay in execution, that would not have occurred but for the existing profound insensibility. But though operations in this anæsthetic period were without much of the terrors of the olden time, they yet fell far short of producing the wished-for result in preservation of life and early restoration of health. Wound complications were still as ever the bane of surgery, and too often the wisest planned and best executed operation resulted in failure because of the supervention of one form or other of septic infection.

It is scarcely twenty years since patient investigation, careful experimentation, and practical testing began to throw strong, clear light upon that most obscure of the subjects of medical study, the causes of disease. As never before in the history of medicine, truly scientific methods of research have been adopted and pursued by a multitude of trained observers in all civilized countries, and surgery has entered upon its scientific period, in which operator and patient are profiting by the labors of the chemist, the botanist, the physiologist, the physician, equally with those of the practical and experimental surgeon. It seems but yesterday when Lister's early papers startled the world. It is but twenty-two years since the first one was published, yet what enormous advances since then in knowledge, in treatment, and in the field of operative interference! A new department of science, surgical bacteriology, has been created (for what was done prior to 1867 may, for practical purposes, be left out of consideration), and in its development has been worked out the mycotic origin of all those pathological processes

looked upon as inseparable from traumatisms, or almost necessarily associated with them if severe. Suppurations, gangrene, septic infection, erysipelas, tetanus, we know to depend upon the presence or the action of one or other of definite organisms that may be isolated, cultivated, and inoculated. Recognizing the cause it has been comparatively easy to devise methods, more or less perfect in action, to prevent the development or neutralize the influence of it, and there has been worked out an antiseptic and aseptic wound treatment, the results of which are simply marvellous. But just here I must protest against the wisdom or the justice of the sweeping declarations of a few enthusiasts, who see in other than speedy recovery after injury or operation evidences of what they are pleased to consider criminal ignorance or neglect.

The existing strong probability that in any given case septic infection might be prevented, has given warrant for the performance of operations that in preaseptic days were not to be thought of.

Abdominal surgery, that so short a time ago meant scarcely more than the removal of an ovarian tumor too often carried until death was evidently fast approaching, now includes operations upon almost every part of each hollow and solid viscus, and laparotomy has taken its place as a safe, proper, and often indispensable prerequisite to the determination of obscure disease. Penetrating and perforating gunshot wounds, so generally fatal when treated by rest and opium, have in at least forty cases been recovered from after section and suture, and there are now but few surgeons still unconvinced of the wisdom of early active interference. At our last meeting Senn's carefully elaborated and beautiful demonstrations set forth a means of determining the existence and location of intestinal wounds that, if safe, as it has thus far seemed to be, will remove the greatest objection to laparotomy in these cases—the uncertainty in the earlier hours of bowel perforation—and prevent what otherwise will occur, the overlooking of one or more lesions. It is not to be expected that all or any close approximation to all of these very dangerous wounds will be saved by early operation, for great injury will ordinarily be produced by the bullet, be it large or small; but every case that recovers after section and suture may fairly be considered as rescued from an otherwise almost inevitable death. Unquestionably the laying open of the peritoneum and operating upon an abdominal organ has at times been carried too far. Useless work has been performed, and life has been sacrificed, for it is not true (so far certainly as operators in general are concerned) that abdominal section is in itself without danger, doing no harm if it accomplishes no good. But not a day goes by that somewhere or other life is not prolonged and comfort secured by an intraperitoneal ligation, suture, anastomosis, or excision, rendered proper, may we not say possible, only by the aseptic results of scientific discovery and experimentation.

So, too, the diseases and injuries of the other great cavities are being attacked by the surgeon's knife guided by the diagnostic knowledge, the localizing exactness and the technical skill of the physician, the physiologist, and the vivisector.

There has been but a beginning of intrathoracic surgery, though for years empyemas have been treated by free incisions, supplemented not seldom by extensive excisions of portions of the chest wall, and even in preaseptic days deeply lodged foreign bodies were removed. Only very recently has the lung been cut into for the evacuation of abscesses and the treatment of gangrenous areas, such pneumotomies resulting favorably in one-half of the reported cases; and as yet but few subpleural tumors have been attacked. There is every reason for believing that in the near future surgery will be able to render great service to the subjects of not a few forms of thoracic disease now regarded as beyond the reach of art.

The most recent and the most brilliant triumphs have been in the treatment of diseases and injuries of the brain and cord. Nowhere else have our art and science so joined hands in affording relief as here. Tumors removed, foreign bodies taken away and their tracks drained, convulsion-centres excised, serous effusions tapped, life preserved and comfort secured; so reads the record. Much remains to be done in the determination of the trouble, the exact localization of the mischief, the perfection of technique. Not seldom mistakes will be made, errors committed, but it will be more and more demonstrated that the trained mind and the skilful hand working together can recognize and successfully treat otherwise irremediable affections within the skull and spinal column. As the operative procedures necessary for the exposure and removal of the spinous processes and laminæ of the vertebræ are but little dangerous, and as septic meningitis can almost certainly be prevented, a change may reasonably be looked for in the treatment of vertebral fractures, especially those in the lower half of the column. Up to this time the cases in which active interference has been made have almost always been those of long duration, in which existing inflammatory changes in the cord, if nothing worse, could not but prevent any favorable result; but even in these, of late, the patient has been none the worse for an operation. Without doubt, early removal of pressure, whether made by bone or blood it matters not, would save many a one from all those deplorable conditions consequent upon myelitis with which we are unfortunately too familiar.

Is there any good reason why spine fractures should not be treated as skull fractures are? and who would now for a moment think of rest and position as the routine treatment of the latter injuries?

But in this scientific period there has been much more accomplished than extension of the range of operative interference, great and important as this has been. As never before it has been possible to preserve damaged parts and to retain important functions, to replace completely detached pieces of bone and secure adhesion as perfect as of the fragments in a simple fracture, to transfer large areas of integument and engraft pieces of bone, to supply deficiencies in soft or hard parts by skin or bone from dog, rabbit, chicken, or frog. Every department of conservative surgery has been and will yet more be benefited by the preventing of the evils consequent upon the action of minute organisms.

The two diseases that produce the widest destruction to part and to life are tuberculosis and cancer. The former that until the discovery of its causative bacillus was regarded as of rare occurrence in parts belonging to the domain of surgery, is now known to be the producer of the vast proportion of the diseases of bones and joints, and of many of those attacking the skin and more ex-

ternal organs. Primarily, and often for a long time local, if allowed to go on unchecked it affects other and remote regions, perhaps rapidly becoming generalized. What has been learned respecting it—that it may attack any part the blood circulation of which is disturbed by general enfeeblement or local injury of ordinarily not severe character; that the bacilli may be destroyed or become encapsulated; that the softened tissues may, in like manner, be taken up and carried off or shut in temporarily or permanently; that if the diseased focus be completely removed, as it often may, the part and the whole are as if it had never existed, except so far as function is disturbed by the loss of what has been taken away and by the scar tissue resulting.

How has treatment been affected by this knowledge? It is of prime importance that early diagnosis be made. Located in bone or joint, and detected while yet limited, prolonged rest, as absolute as possible, will in the majority of cases, certainly in young subjects, secure destruction, absorption, or encapsulation of organisms or affected cells with resulting restoration to health. Advanced to the stage of caseation and liquefaction, rest may yet be followed by recovery, though ordinarily free drainage, with or without associated removal of the infected tissue, will be of great advantage. Injection of agents, such as iodoform, or the acid phosphate of lime, that will destroy the bacilli and the tuberculous masses, may produce the wished-for cure. But ordinarily it will be better, indeed generally necessary, to remove the affected area either by formal or informal excision or by amputation. Whether diseased joints are best treated by arthrectomies or by typical excisions is one of the questions still *sub judice*, though in the last three years, as never before, it has been shown that formal removals of the larger articulations can in a large proportion of cases be followed by early repair and solidification without suppuration or constitutional disturbance—even at times with recovery of original function. Although it is not likely that it can ever be said with truth that the days of the lame and the hunchbacked have gone by, because of neglect, delay, or generalization of the pathological process, yet we have good reason to believe that further advances in the knowledge of the development and extension of the tuberculous disease will enable the surgeons of the future so to limit, ameliorate, and cure the surgical tuberculous affections as that they will no longer constitute one of the most, if not the most, important and destructive of the external diseases.

Of cancer it may with truth be said we know very little; yet of nothing do we more need knowledge. Much less often met with than tuberculous disease, it is yet of not infrequent occurrence. In our eight largest cities (Boston, New York, Brooklyn, Philadelphia, Baltimore, Chicago, St. Louis, and Cincinnati) during the five years ending December 31, 1888, of 599,684 deaths from all causes, 13,094 were from cancer, 2.19 per cent.; and, as we all know, the disease is not peculiarly an urban one. In five of the eight cities, New York, Chicago, Cincinnati, Brooklyn, and St. Louis, the death-rate was much the same, being, in the order given, 2.1, 2, 2, 1.94, 1.93 per cent. In Boston it was the highest, being 2.98 per cent.; in Baltimore it was 2.4 per cent.; and in Philadelphia 2.28 per cent. In Cincinnati, in the last year, the percentage reached 2.6, while in 1868 it was but 0.55; an altogether exceptional rate, as only once since has it fallen below 1 per cent., in 1870, when it was 0.8. For these figures I am indebted to the Health Officer, Dr. Stanton. One in fifty, then, of the deaths in an aggregate city population of over five millions is due to this disease; and if we have regard only to the mortality of those within the cancer age—*i. e.*, more than thirty-five years old, about one in twenty of the deaths is thus produced. Even among the carefully selected adult individuals carrying life insurance, who are free, or are supposed to be, from family predisposition to cancer from 2.5 to 3.5 per cent. of the mortality is from this disease.

The statistics just mentioned, and, particularly, the marked contrast between the high death-rate in Boston and the low one in St. Louis, give but little support to the theory of Haviland, that low lands subject to frequent overflows are those in which the disease is most prevalent. In preparing the mortality statistics of the census of 1880, Dr. Billings found that the disease was most prevalent in New England and Southern California, and least so in the South and upon the Mississippi. It is to be hoped that in the preparation of the vital statistics of the next Census such attention may be given to this subject of occurrence and distribution, and such full and complete reports secured as will add materially to our knowledge, and go far toward determining the correctness or incorrectness of the views of the English writer named. Care should be taken to separate, if possible, cases of sarcoma from those of cancer. Hirsch to the contrary notwithstanding, this affection is probably becoming more common throughout the civilized world; certainly is so in our own country and in Great Britain. Increased accuracy in diagnosis will not account for a doubling in twenty years of its mortality-rate in Massachusetts, or in Cincinnati, or in less than twice twenty years in England.

Frequently, if not usually, attacking individuals in good general health (though oftentimes appearing soon after a period of marked mental anxiety and depression), it has regard neither to social conditions nor hygienic surroundings. Unlike consumption, which is often of limited duration, ending in recovery, and at the worst, ordinarily bringing death gently, cancer left to itself very rarely is spontaneously eliminated, is almost inevitably destructive to part and to life, and is often attended with severe physical and mental suffering.

What is its starting-point? An unused long-dormant embryonic cell, at length aroused to activity by local irritation, general enfeeblement, or nervous exhaustion? In all probability, no. An abnormal epithelial development, abnormal because unconfined within its normal limits? But why unconfined? An epithelial cell undergoing proper degenerative changes, but arrested at some point short of its complete alteration? What stops its retrograde movement? Is it of mycotic origin? That it should be so would hardly be more strange than that lupus or lepra should be. That it is so has not yet been proved. The many investigations that have been made, some of them for a time apparently fruitful, have thus far failed to discover a causative bacillus, unless farther and extended cultivations and inoculations shall prove that Kübasoff has actually found it. Experimental inoculations have again and again produced no specific result, but Lampiasi has claimed that by using a bacillus culture from the blood he succeeded in causing in a healthy part of the patient's skin the growth of a nodule having "an

alveolar stroma with wide meshes, which contained many epithelial cells of different form and size," and Hanau has twice successfully transplanted from rat to rat.

No more inviting field is open to the competent bacteriologists and experimenters of our country (and we have a number of them, as also well-equipped laboratories) than this very one of cancer. Cases are numerous, specimens are being daily secured, and there is no reason why America should not now do full part in settling the vexed questions of nature and origin. The imperative necessities of a struggle for existence, and the intense practicality of a new and developing country, have heretofore prevented any but the very few filled with enthusiasm, or independent of fortune, from engaging in purely scientific studies involving minute investigation and patient labor with often no apparent practical outcome. But the times are changing, and the profession of our country, may and doubtless will ere long, be as well and favorably known in biological research as it has been and is in relation to ovariotomy, to ether, to the hip, to the treatment of stone, to the surgical diseases of women, to abdominal section, to a multitude of affections and the means of treating them.

As we see it in lip or breast or uterus or stomach, or it matters not what part or organ, is cancer a local disease, or but a local manifestation of a constitutional state? The question is still an open one, though the great majority of pathologists and clinicians are now agreed that wherever seated, it is primarily and for a time purely local, whatever may be the general conditions inherited or acquired that permit or favor its development. If not of limited area and capable of complete removal, operative interference can be justified only on the ground of affording temporary relief—unfortunately, all that is accomplished in the majority of cases submitted to the knife. But there is great encouragement in the knowledge that a certain percentage of patients operated upon do recover, that is, remain free from recurrence for three or more years; and that this percentage is larger or smaller, according as the disease is so situated as to be early detected and thoroughly removed, or the contrary. Located in the lower lip or cervix uteri, for example, two out of five patients operated upon get well, in the breast one in eight. Why this great difference? Because, we may believe, of the site itself, and of the degree and rapidity of extension in parts immediately adjacent, and of glandular involvement; in other words, of the likelihood of early and the possibility of complete extirpation, or the opposite. How are to be regarded those cases in which, after five, ten, or twenty years of apparently perfect health, the disease again shows itself and destroys life? As of long quiescence of infected and infecting cells, or of a new and independent affection? The latter explanation certainly makes a far less demand upon our credulity, and it is no more strange that there should be a second than a first attack in a person and tissues possessing an undetermined and unknown receptivity, and such there certainly must be that cancer may be developed at all.

Of nothing are we more certain than of the immense advantage there is in early recognition and speedy removal; and, on the other hand, of the utter uselessness, so far at least as the ultimate result is concerned, of any surgical interference after wide extension has taken place.

In perfecting, therefore, the means of establishing diagnosis at an early day, lies an important work in the future. Though consideration of age, of location, of pre-existing long-continued irritation, go far toward settling the nature of a given tumor, and upon such estimation of probabilities action may generally safely be taken, yet, as a rule, certainty of the character of the growth can only be had after scientific determination of its anatomical constitution. Whatever, then, makes it possible safely, easily, and without pain, to remove for microscopic examination a sufficiently extensive piece of the mass to show its deep as well as superficial structures, is of much practical value. A convenient and promising little instrument has lately been given to the profession by Dr. Collins Warren, of Boston.

Physiological and chemical investigations have furnished us with early and reliable evidence of the existence of cancer of the stomach, in absence of the hydrochloric acid in the secretions of that viscus; may not kindred investigations give us like aid when other organs are affected?

The modern and scientific wound treatment now enables the surgeon to remove more extensively, and, at the same time, safely, so that active interference may reasonably be expected to be, and is, attended with much better results than could be looked for a few years ago. Much of the work, though that in the last decade has been done upon internal cancers, has been of questionable utility, chiefly because of its late performance.

What will the future reveal respecting the non-operative treatment? Will a drug or drugs be found to secure the destruction and removal of the morbid mass? May the moderate continued electric current long employed, or powerful interrupted currents "flashed through," produce, as has been claimed for them, entire disappearance of the diseased cells? Can some pathogenic organism be inoculated that, without killing the patient, will break down the malignant growth? We all know what has been done with the micrococcus of erysipelas.

In nothing could this Association do more than in determining by collective investigation and thorough committee work the frequency of occurrence of carcinoma in the country as a whole, and in its several States, the relation borne (if any) to geological formation, the age of appearance, the relative affection of parts and organs, the influence of therapeutic treatment, and the duration of life with and without operation. Five years of such work would suffice to accumulate a mass of statistics of very great value, the study of which could not but advance the interest of patients and practitioners; and in this, as in everything else, "many hands make light work." To physicians, surgeons, and therapeutists the subject is one of prime importance, and only by combined scientific and practical work can it be determined what excites and produces the disease, and what can secure its relief.

As we survey the advances, etiological, diagnostic, and therapeutic, made in the few years just past, that are of the scientific period, and consider, even in the most hurried way, the problems that are yet awaiting solution—problems relating to nature, origin and treatment of the diseases and injuries of parts within the domain of surgery—what may we not reasonably anticipate as the future of our science and art! Accidents must occur, diseases will prevail, no matter how great the triumphs

of preventive medicine. Surgical pathology is but in its infancy. Years ago it was declared that operative surgery had reached its climax. Yet since then operations have over and over again been done within abdomen, chest, and skull, upon the larynx, throat, and spinal cord, that in boldness of conception and brilliancy of execution have no parallel in the history of medicine. The end is not yet, nor will be, while, the world over, there are active minds and cunning hands busied with the determination of the existence and extent of surgical affections, and ready and able to remove them, aided more and more by labors of investigators in many departments of science, general as well as medical. Year by year he who may deliver the Address on Surgery will be able to report doubts removed, discoveries made, remedies employed, and operations done.

MEDICAL PROGRESS.

Resection of the Sternum.—In an article on the resection of the sternum in the *Centralbl. f. Chirurg.*, May 25, 1889, DR. G. STEINHEIL says that the operation was first performed by Galen, and used to be most rare. Since the sub-periosteal method was introduced by Ollier it has become more frequent.

Eighty-four cases were reported by Otis as having occurred during the American war, but these Steinheil does not take into consideration, as their history was incomplete. He, therefore, states that thirty-six authentic cases have been recorded. In conclusion he makes the following assertions:

1. The sternum can be successfully resected in part or in its entirety.

2. The difficulty of the operation depends upon the extent of the resection, the portion resected, the cause of the operation, and the method employed, whether subperiosteal or not.

3. In complicated fractures, especially when resulting from gunshot wounds, the result of the resection depends upon the course of the wound.

4. Chronic inflammatory processes are the most frequent indications for resection of the sternum. The subperiosteal method is attended by the greatest success, frequently osseous regeneration will follow. The operation is frequently performed for the removal of tumors of the sternum and mediastinum, and also to form an opening in the chest through which the larger vessels may be tied.

Treatment of Tinea Tonsurans.—DR. A. F. HARRISON, of Bristol, in an article in the *British Medical Journal* for March 2, 1889, alludes to the unsatisfactory modes adopted in the treatment of that troublesome complaint, tinea tonsurans. Dr. Harrison states that the great difficulty of getting at ringworm of the scalp is physical; the parasitic fungus revels and runs rampant in the secure nidus of the hair and hair-follicle, a soil so congenial that it seems to be in some cases ever fertile and ever fertilizing. To overcome this difficulty, and so get at this secure fungus retreat, he indicated that no remedies could be considered highly efficacious which did not act chemically upon the hair matter itself and at the same time carry with them a parasiticide. Upon experimenting, Harrison found that caustic alkalies were most useful hair-solvents, but did not destroy the conidia, and it was necessary to combine other agents with them. After a long series of careful investigations he found that the following ointment gave the best results:

℞.—Caustic potash . . . . grains jx.
Carbolic acid . . . . " xxjv.
Lanolin } . . . . āā ℥ss.—M.
Cocoanut oil }

The ingredients should be well rubbed together, and, if desired, a little oil of cloves, lavender, or rosemary may be added.

When the disease occurs in a family he recommends those free from it to use the following prophylactic pomade:

℞.—Boracic acid ointment } . . āā ℥ij.
Eucalyptus ointment }
Oil of cloves . . . . ℥ss.
Oil of cocoanut, q. s. to make . ℥ij.—M.

This preparation constitutes a most elegant pomade and entirely prevents inoculation. It should also be used on those parts of the patient's head where the disease has not reached.

In treating ringworm, Dr. Harrison does not advise the shaving of the head, but allows about a half-inch in length of the hair to remain. This, he says, gives a hold to the ointment. He prefers ointments to lotions, for the reason that ointments will be well rubbed in, while lotions will be but indifferently applied.

Treatment of Lupus.—DR. SCHÜTZ, in the *Therap. Monatsheft*, May, 1889, states that, having observed the beneficial effects of compression bandages in leg ulcers, he conceived the idea of applying a similar treatment in facial lupus where, after the latter has been scraped away, large granulating surfaces are left. His method is to apply a carbolized gutta-percha plaster containing mercury to the wound, and fixes it to its place with a thick coating of collodion. This plaster should be removed every six to twenty-four hours. The change of dressings should be performed as rapidly as possible, ether being used to dissolve the collodion. After the wound is fairly closed a plain dressing should only be applied for a few days; the cicatrix may then be rubbed down with powdered marble and soap and massage resorted to. The general health of the patient is also of great importance. A strong nutritious diet should be enforced; fresh air and gentle exercise also advised.

Antipyrin Hypodermically in Acute Articular Rheumatism.—A case of severe articular rheumatism, which, for seven weeks, had been treated by the remedies usually employed in such cases without avail, is reported by DR. H. AMON, in the *Centr. f. klin. Med.*, May 25, 1889, as having been completely cured by six-grain hypodermic injections of antipyrin. The remedy was subsequently employed in twenty other cases with equally gratifying results. Amon usually injected the drug deeply into the muscle and in the immediate vicinity of the affected joints; a bandage with considerable pressure was then applied. In one instance he observed a slight superficial gangrene of the skin to follow the injections. Very little pain was caused by their use.

Tape-worms in Children.—The following prescriptions will, according to the *Lyon Médical*, May 12, 1889, be found most effectual in cases of tapeworm occurring in children. Both are very agreeable to the taste, and are, therefore, easily administered:

I.

℞.—Oleoresin of aspidium	ʒj to ʒijss.
Peppermint water	f.ʒss.
Essence of anise	gtts. x.
Chamomile water	f.ʒj.
Syrup of sugar	f.ʒv.
Syrup of bitter orange-rind	f.ʒv.

II.

℞.—Oleoresin of aspidium	ʒj.
Calomel	6 grains.
Sugar	ʒij.
Gelatine	q. s.

Make into the consistency of jelly, and administer as a confection.

Thuya in the Palliative Treatment of Epithelioma of the Larynx.—At the meeting of the Société de Médecine Pratique of Paris, held on May 3d, DR. BARATOUX reported the results of the treatment of a number of tumors of the nose, throat, and larynx, with tincture of thuya (Gr. P.). The remedy has formerly been used in the treatment of growths on the genitals, and even in epithelioma of the neck of the womb. In growths of the first-named organs, the tincture speedily remedied the fetid breath, lessened the discharge and even caused a marked decrease in the size of the tumor. It was used in twelve cases in all, with equally good results. In one case, where extirpation of the larynx was impossible, it undoubtedly prolonged life for two years.

DUJARDIN-BEAUMETZ said, in the same meeting, that the tincture of thuya was valuable in growths of the skin, such as warts. RELIQUET stated that the tincture in twenty to thirty-drop doses was most valuable in vesical tumors when surgical interference was impracticable. Tincture of thuya given internally is a popular remedy for warts among the people of Brittany.—*Deutsche med. Wochenschrift*, May 23, 1889.

Calomel and Digitalis in Ascites.—In cases of ascites following cirrhosis of the liver, in which there are no other complications apart from cardiac affections, DR. SCHWASS, in the *Centralbl. f. klin. Med.*, May 25, 1889, advises the use of calomel and digitalis in the following formula:

℞.—Calomel	2 grains.
Digitalis	¼ grain.—M.

The above dose every three hours for a week.

The diuretic action of this combination is far greater than that of either drug singly and can also be tolerated longer and better than either drug alone.

The New Analgesic Exalgine.—Still another compound of apparently considerable medicinal value (if we may trust the statements) has been obtained from one of the products of the destructive distillation of coal-tar. It has been experimented with by several members of the Academy of Medicine, who have reported favorably; and in consequence of its marked analgesic properties it has received the name exalgine.

At the last meeting of the Société de Thérapeutique M. BARDET presented samples of this substance and made his report.

Exalgine represents chemically, methylacetanilide, $C_9H_{11}N.O = C_6H_5C_2H_3ONCH_3$. From acetanilide three methylic derivatives are obtained; one of these is the substance in question, and is designated by the name ortho-methylacetanilide. It presents itself in the form of fine needles or large white tablets, is little soluble in cold water, more soluble in warm water, and very soluble in spirit and water. Administered to animals (Paris) this substance acts energetically on the cerebro-spinal axis and speedily kills in the dose of forty-six centigrammes per kilogramme of the weight of the animal. It causes restlessness and trembling, and the respiratory muscles soon become paralyzed. In a less dose all sensibility to pain disappears, and the temperature of the body diminishes gradually.

The physiological effects of exalgine are very similar to those of antipyrin, although the former seems to act in a more marked manner than antipyrin on the sensibility, and less energetically on the heat centres.

The analgesic effects of exalgine are obtained by a full dose of seven grains; in some instances it may be necessary to repeat this dose in a few hours. The relief from pain is more prompt and more lasting than when antipyrin is given; this is emphatically the case in all forms of neuralgia, especially in the visceral neuralgias. So far no symptoms of gastric or intestinal irritation have been noted when exalgine has been given for its medicinal effects; its use has never been attended by cutaneous eruptions or by cyanosis.

Exalgine is eliminated by the urine, the excretion of which it seems to lessen in diabetic polyuria, at the same time that it diminishes the quantity of sugar in the urine. —*Boston Med. and Surg. Journ.*, June 6, 1889.

Injections of Iodoform in Cold Abscesses.—DR. BARKER, in the *Journal de Médecine de Paris*, May 19, 1889, states that he had frequently used injections of iodoform emulsion in the treatment of cold abscesses with marked success. The formula used by him is as follows:

℞.—Iodoform	10 parts.
Glycerine	70 "
Hot distilled water	20 " —M.

Grind up the iodoform with a few drops of alcohol and the glycerine, then add the water.

An Antiseptic Mouthwash.—DRS. GALIPPE and MALASEZ have found the following mouthwash most valuable as well as agreeable:

℞.—Alcohol	370 parts.
Carbolic acid	10 "
Thymol	5 "
Oil of peppermint	15 "
Tincture of anise	100 " —M.

This mixture, which may be colored with a little tincture of cochineal, should be used every morning and evening in conjunction with a weak solution of boric acid.—*Deutsche med. Wochenschr.*, May 23, 1889.

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SATURDAY, JUNE 29, 1889.

THE ASSOCIATION MEETING.

FOR the first time in a quarter of a century the American Medical Association has met in a New England State, and for the first time in its history in the State of Rhode Island. While the gathering was not large in comparison with those of recent years—probably not over six hundred members were in attendance—yet all parts of the country were represented. The beautiful town of Newport was in attractive garb, the weather was perfect, and the arrangements by the Committee for the comfort and convenience of the members in all matters pertaining to the meeting were admirable.

The President's Address was an interesting exposition of the share in the advancement of medical knowledge taken by the American profession. The progress of medical education in this country and the marked improvement, within the last few years especially, in our means and methods were indicated, and the influence of such factors as improved preliminary education, a broader curriculum, and a higher standard, the endowment of colleges and the equipment of laboratories, rendered possible by the accumulation of wealth, were clearly traced. Reviewing our periodical literature as the exponent of professional culture and advance, Dr. Dawson pointed out that our oldest journal, *The American Journal of the Medical Sciences*, with its British contemporary, the *Lancet*, had for over half a century exercised a marked influence on medical progress, the value of which, he thought, could scarcely be overestimated. The Army Medical Museum and Library and our medical societies were also referred to as influential factors in professional culture. Turning, then, to the practical results, he cited anæsthesia, ovariotomy, and rapid lithotrity, with the operations devised by Sims, Sayre, Battey, and Emmet, as contributions to the relief of human suffering of which any nation might well be proud.

But Dr. Dawson did not confine himself to the roseate hue of medical progress; he strongly deprecated the provisions of some of the laws which have been passed of late years to regulate the practice of medicine, as conferring the seal of respectability upon any sham or pretender who held a diploma from any kind of college which might happen to possess a charter, and he took strong ground against the propriety of physicians sitting in State boards of health and the like with irregular practitioners.

In his peroration, Dr. Dawson made an eloquent plea for the maintenance of the National Association as a high and representative tribunal, the wisdom of whose decisions could always be relied upon, and to which all questions of general import can be referred.

One of the most remarkable evidences of the developmental growth of our profession is to be found in the large number of native works in every department of medicine which have emanated from the American press within the last two decades, which have almost completely supplanted the foreign text-books upon which we had heretofore depended. A reference to this Dr. Dawson might well have coupled with his allusion to the famous interrogatory of Sydney Smith, to which it is the reply. Not only is an edition of *The American Journal of the Medical Sciences* published in Great Britain simultaneously with its appearance in this country, but we constantly find in the London weeklies British booksellers advertising American text-books, some of which have been so highly esteemed as, also, to be translated into the principal foreign languages.

The Address in Medicine was a study of Benjamin Rush, as physician, philanthropist, and patriot, with a comparison of the therapeutic practice of his day with that which prevailed a century earlier in the time of Sydenham. The subject was aptly chosen, and by forcibly directing attention to the life and character of the greatest of American physicians, Dr.

Pepper ably furthered the efforts of the Association's Rush Monument Committee, of which Dr. Gihon, of the Navy, is chairman. The project for this monument was started at the meeting in Washington, in 1884, and, notwithstanding that the financial exhibit is now no more encouraging than that of many funds for similar purposes, yet it is confidently hoped that a sufficient sum may soon be subscribed to erect a memorial worthy of so distinguished a man. Public monuments have already been erected to all the great actors in the Revolution save Rush, a signer of the Declaration and a prominent and vigorous figure in the stirring events which followed and led up to the establishment of our national independence. Inasmuch as he was also America's greatest physician, it is eminently fitting that in these days of centennial reminiscences the medical profession should, to the honor of its own guild, erect at the Nation's capital a fitting monument to the memory of Rush.

The Address in Surgery made reference to some of the more important recent advances in this field of research, particularly to antisepticism, the surgery of the abdomen, brain and spine, tuberculosis, and cancer. While strongly endorsing the antiseptic method, and pointing out that the brilliant results of abdominal surgery have only been rendered possible by asepticism, Dr. Conner protested against that enthusiasm which sees in failure to obtain speedy recovery after injury or operation, evidence of "criminal neglect."

In reference to the two most fatal diseases, tuberculosis and cancer, he pointed out that while the recent discoveries in reference to tuberculosis had enlarged our knowledge of its surgical manifestations, and modified our treatment, in regard to cancer we still knew very little. We are aware of the importance of its early recognition and speedy removal, and of the uselessness, so far as ultimate recovery is concerned, of surgical interference after wide extension of the disease, but of its etiology we are still in ignorance. He concluded with the very practical recommendation that the Association should undertake a collective investigation to ascertain the frequency of carcinoma, its relation, if any, to geological formation; the age of appearance; the relative affection of parts; the influence of treatment; and the duration of life with and without operation. The Association could undertake no more useful investigation, and we hope that in a few years we may see fruitful results from this feasible and good suggestion.

The selection of Dr. E. M. Moore, of Rochester, for the presidency will be regarded throughout the country with universal satisfaction both for his personal worth and in recognition of his valuable contributions to practical surgery. It is the crowning honor of a long career devoted to the furtherance of the best interests of the profession and to the material advancement of surgical knowledge.

Nashville as the place of meeting has the merit of being central and accessible from all directions.

The attendance at this year's meeting was, without doubt, sensibly diminished by the limited accommodations afforded by the Newport hotels, and by the failure to secure the usual reduction in transportation rates. This, we are informed, was due not to any lack of courtesy on the part of the principal trunk lines, but entirely to the unwillingness of the Old Colony Railroad, which controls about all the approaches to Newport, to make any reduction until the last moment, when it was too late to notify the members and render the concession available. The largest meetings, too, experience has shown, have been held in the large cities on the main lines of travel, which have widely extended medical interests as well as the other substantial attractions that always insure a good attendance. The Newport meeting demonstrates that even an unusually good programme of scientific work will not fully counterbalance these more material advantages. Yet the meeting of 1889 will always be remembered as an extremely pleasant gathering, at which much excellent scientific work was accomplished.

EXCESSIVE GROWTH OF THE PROFESSION.

A LEADING article in the *Lancet* recently remarks upon the newly issued *Medical Register of Great Britain* for 1889, with somewhat gloomy forecast concerning the excessive growth of the medical profession during recent years. The editor holds that there is too great a rush into the profession on the part of young men. The new admissions to the *Register* in 1888 were 1184, while the known losses by death, retirement, and other causes were less than 600—the number of reported deaths being 511—giving an influx of qualified practitioners of about 600; the students' registration at the same time

amounting to 1986, or about 1400 over and above all losses. But of this invading column of 1986 would-be practitioners, about one-third, the figures of recent years show, will fall by the way before the end of the five years' study will have been reached. The *Lancet* expresses sorrow for the student and regret for the profession that so abnormal an increase of the ranks is annually threatened; apparently, its ideal of the growth of the fraternity would be one which would just about even up the losses that are sustained by death and disability.

But if the trans-Atlantic position be thus deplorable, what comfort is there in a contemplation of the situation in our own country? Here we have already a proportionate supply of doctors amounting to 120 to every 100,000 inhabitants, while in England there are only 64 in 100,000, and in Great Britain at large, a still less proportion. And the annual increment of medical graduates in this country is fully treble that of Great Britain; a recent summary of the Illinois State Board of Health states that 3,219 regular physicians were sent forth from the ninety-one schools of the better class during the session of 1887–8, and nearly 600 others non-regular. The output of the current year promises to be an ample one, to say the least; in four recent numbers of THE NEWS, the quota of graduates from twenty-four colleges east of the Rocky Mountains has been published, amounting to not less than 1,534, with forty or more regular institutions yet to be heard from. If the British outlook can be considered gloomy, how cheerless is the situation in this land of almost unrestricted production!

WE learn from the *Berliner klinische Wochenschrift* of June 3d, that the arrangements for the International Medical Congress in Berlin next year have been confided to Professors Virchow, von Bergmann, and Waldeyer. These gentlemen purpose not only to obtain the active coöperation of the profession of Berlin, but also of the whole of Germany. Invitations have already been extended to all German medical societies. The Congress will probably be opened on August 6, 1890.

DR. RICHARD J. HALL, Professor of Anatomy in the College of Physicians and Surgeons, New York, has resigned his chair by reason of ill-health. His successor to the professorship has not been elected, but Dr. George S. Huntington has been appointed to deliver the lectures in that branch at the session of 1889–90.

THE next meeting of the American Dermatological Association will be held at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1889.

BY the will of the late Stanton Blake, of Boston, the Massachusetts General Hospital receives a donation of $10,000. The work of the Hospital will be further amplified by an Act of the late Legislature, which sets apart the sum of $55,000 for the erection of an overflow hospital for epileptics at Baldwinsville.

DR. C. E. SIMMONS, who is suing the estate of the late Samuel J. Tilden for $143,350 for medical advice, figures up the sum, according to the *Boston Medical and Surgical Journal*, by charging $50 a visit for 2200 visits, and $50 a day for holding himself in readiness to devote his exclusive attention to Mr. Tilden.

The Lancet, of June 1st, says that according to intelligence received from the Governor of Madras, between one thousand and fifteen hundred deaths from cholera are now taking place weekly.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Fortieth Annual Meeting, held at Newport, R. I., June 25, 26, 27, and 28, 1889.

(Specially reported for THE MEDICAL NEWS.)

(*By Telegraph.*)

GENERAL SESSION.

TUESDAY, JUNE 25TH.—FIRST DAY.

The General Session was called to order by Dr. H. R. Storer, of Newport, Chairman of the Committee of Arrangements, at 11.30 A.M., in the Music Hall, and the President, W. W. Dawson, M.D., of Cincinnati, took the chair.

The Rev. Thatcher Thayer then made the opening prayer.

The President extended an invitation to the ex-presidents of the Association and to all foreign visitors to occupy seats on the platform. This was responded to by Drs. N. S. Davis, J. M. Toner, and Wm. Brodie, ex-presidents.

Dr. Storer announced the death of Dr. F. H. Rehwinkel, of Chillicothe, O., Chairman of the Section of Dentistry, and of Dr. J. B. Hunter, of New York, who had promised to contribute a paper in the Section on Obstetrics.

Dr. Rives announced that letters of regret at being

unable to be present had been received from the President of the United States and his Cabinet; Sir James Grant and Sir Charles Tupper, of Canada; Dr. E. H. Gregory, of St. Louis, and Dr. H. I. Bowditch, ex-presidents of the Association.

Invitations were received from the commanding officer of Fort Adams, to witness a drill of the Light Battery; from Commander Higgins, of the Navy, in charge of the U. S. Training School; from Commander Woodward, of the U. S. Torpedo Station; from the Newport Hospital; from the Redwood Library; the Rev. Rabbi Mendez, of the Jewish Synagogue, the oldest in the State; from the Assistant Superintendent of the Third U. S. Life-saving District—each extending cordial welcome to all who desire to visit the various places of interest in their charge. Other entertainments were also announced by card.

Dr. Storer stated that he had placed on exhibition his collection of medical medals at the rooms of the Historical Society.

A letter of welcome was received from the Dean of Harvard Medical College to all who desired to visit that institution.

In view of the failure of the Committee of Arrangements to secure reduced railroad rates, Dr. Storer advised the Association hereafter to make it a duty of the Permanent Secretary to secure travelling facilities for the Association, or otherwise to retain some special officer for that purpose, suggesting the name of Dr. L. H. Mongomery, of Chicago.

On motion of Dr. J. C. Culbertson, of Cincinnati, the matter was referred for consideration to a committee of three to report to-morrow.

THE ADDRESS OF WELCOME

was then delivered by His Excellency, Herbert W. Ladd, Governor of Rhode Island.

Dr. James H. Eldredge read a greeting on behalf of the State Medical Society, of which he is one of the oldest members. In it he urged the admission into the Association of all physicians without regard to sex or school of practice.

THE PRESIDENT'S ADDRESS

was then read (see page 701).

The Session then adjourned.

WEDNESDAY, JUNE 26TH.—SECOND DAY.

The Association was called to order by the President at 10.30 A.M.

Rt. Rev. Thomas M. Clark, Bishop of Rhode Island, made the opening prayer.

Dr. Storer announced the several entertainments of the day, and repeated the invitations given the day previous.

The President announced the names of Dr. J. C. Culbertson, Dr. Schenck, and Dr. J. H. Musser as members of the Committee on Transportation.

The Permanent Secretary then announced the

NOMINATING COMMITTEE,

as follows:

Arkansas.—P. O. Hooper.
Colorado.—J. W. Graham.
Connecticut.—C. H. Bill.
District of Columbia.—D. W. C. Patterson.
Georgia.—J. B. S. Holmes.
Illinois.—J. S. Marshall.
Indiana.—G. J. Cook.
Iowa.—W. F. Peck.
Kansas.—J. E. Minney.
Kentucky.—J. M. Matthews.
Louisiana.—J. J. Bland.
Maine.—Frank Hitchcock.
Maryland.—John Morris.
Massachusetts.—J. N. Warren.
Michigan.—W. Brodie.
Missouri.—I. N. Love.
Minnesota.—J. H. Murphy.
Nebraska.— —— Carter.
New Jersey.—B. A. Watson.
New York.—E. D. Ferguson.
New Hampshire.— —— Hill.
Ohio.—W. S. Christopher.
Pennsylvania.—W. H. Parish.
Rhode Island.—George S. Collins.
Tennessee.—E. C. Savage.
Texas.— —— Van Gasken.
Vermont.—H. D. Holton.
West Virginia.—A. S. Stephen.
Virginia.—W. S. Robinson.
Wisconsin.—W. P. Galloway.
United States Army.—Major Smart.
United States Navy.—John L. Nielson.
United States Marine Hospital Service.—W. H. Long.
Utah.—W. Bascom.
New Mexico.—W. H. Ashby.

DR. WILLIAM PEPPER, of Philadelphia, now delivered

THE ADDRESS IN GENERAL MEDICINE.

It consisted almost wholly of a biographical sketch of Dr. Benjamin Rush. He spoke at length on his general good qualities as a man and patriot as well as a doctor, of his opposition to slavery, his support of and assistance to Franklin in the Revolutionary period and the formation of the government, his opposition to the abuse of alcoholic liquors, to the use of tobacco, his leadership in works of practical value, his standing as a literary man of the highest type, his advocacy of the advanced education of women, of public schools, etc. In every way Dr. Rush was a pioneer in the field of medical practice, and the history of American medicine practically begins with and was for a time the history of Dr. Rush.

DR. A. L. GIHON, of the Navy, then read his report of the

RUSH MONUMENT COMMITTEE.

The Committee regretted that they were unable to report progress. Indeed, they doubted if the project would be completed within their expectancy of human life. They called attention to the fact that the founders and leaders of every other profession and calling have been honored by fitting monuments and tributes. We join in hurrahing for the names of generals, politicians, etc., but forget the illustrious members of our own profession. It was believed a few years ago that the bare mention of the project would call forth spontaneous contributions of not less than one dollar from each of the forty thousand members of our profession. But the treasurer of the Committee now reports the receipt in

five years of only the first thousand. It is true that other great monuments have met with slow contributions. But of late there have been notable exceptions. In conclusion, the Committee begged to resign to the Association their appointment, in the hope that some other members may be found who shall discover some shorter way of securing the funds. They entreated the Society, however, never to abandon the project.

DR. HERRON moved that one member from each county society be appointed for the purpose of personally soliciting contributions to the Rush Monument fund. The motion was carried, as was also a motion that subscriptions be received immediately.

DR. GARCELON, of Maine, moved that the consideration of

AMENDMENTS TO THE CONSTITUTION

be made the first order of business tomorrow morning. The motion was lost.

The Secretary then read as the first amendment offered to "Strike out the last clause or paragraph of Section 7, relating to individually affixing names to the Constitution and regulations of this Association."

DR. N. S. DAVIS then read paragraph seven, explaining the intention of the proposed amendment. The amendment was unanimously adopted.

DR. SCOTT, of Ohio, moved that further action on the amendments be deferred until next year, in order to permit the Secretary to present the matter in an intelligible form.

DR. J. C. CULBERTSON moved that the preparation of the printed amendments be referred to the Board of Trustees of the *Journal*.

By unanimous vote the motion of Dr. Scott was tabled.

The SECRETARY then read as the second amendment offered that proposed by Dr. H. N. Moyer, of Ill., viz.:

"There shall be created a Section of Pharmacy and Materia Medica which shall have its own autonomy in like manner as the Section in Dental and Oral Surgery. Reputable members of State Pharmaceutical Associations shall be eligible as members of the same on presentation of credentials from their State Secretary, but shall have no voice in the general sessions of the Association. The Section of Surgery shall hereafter be denominated the Section of Surgery and Gynecology. There shall be created a Section of Anatomy and Physiology. The Section of Obstetrics and Diseases of Women shall be abolished. The Section of Diseases of Children shall hereafter be denominated the Section of Obstetrics and Pædiatrics. The Section of Dermatology and Syphilography shall hereafter be denominated the Section of Dermatology and Genito-urinary Diseases. The Section of Medical Jurisprudence shall hereafter be denominated the Section of Mental and Nervous Diseases. The Section of State Medicine shall hereafter be denominated the Section of State Medicine and Medical Jurisprudence. The Section of Practice of Medicine, Materia Medica, and Physiology shall hereafter be denominated the Section of Internal Medicine."

DR. N. S. DAVIS opposed the amendment as an effort to rehash all that has been done in the formation of Sections. He moved to postpone indefinitely all but the first paragraph.

DR. HERRON moved to amend the motion so as to postpone the entire amendment.

The entire matter was tabled by a vote of ninety-two to eight. A motion of Dr. Early, of Pennsylvania, to reconsider was unanimously laid on the table.

The Secretary then read the following amendment to Section V of the Constitution:

"The General Committee or Council shall be composed of *two members* from each State and Territorial Medical Society entitled to representation by delegates in the Association, and from the Medical Departments of the U. S. Army, Navy, and Marine-Hospital Service. They shall be chosen by the members registered and present at each annual meeting, from each State, Territory, and from the Medical Corps of the U. S. Army, Navy, and Marine-Hospital Service, acting separately, on the third day of each annual meeting; each delegation reporting the names of the members chosen to the Permanent Secretary of the Association on the same day, that they may be announced by him at the opening of the morning session of the fourth day. At the first election each delegation shall choose *two* members of the General Committee, one of whom shall serve *one* year and the other *two* years, and at each annual election thereafter one member shall be chosen to serve for two years, thus making the term of office of members of the General Committee *two* years. It shall be the duty of the General Committee, thus constituted, to organize by choosing annually a Chairman and Secretary, and such sub-committees as may be found necessary to facilitate the work that may be assigned to it; to meet annually at the place and on the day preceding each annual meeting, all the general officers of the Association (none of whom shall be members of its own body), the members of the Committee of Arrangements, the Committee on Necrology, seven members of the Judicial Council, and three members of the Board of Trustees for Publication for election by the Association; to recommend the place and time of holding the next annual meeting; and to consider and report upon all subjects that may be referred to it by vote of the Association. The presence of one-third of the whole number of members elected to the General Committee shall constitute a quorum for the transaction of business. If, at any annual meeting of the Association, it shall be found at the close of the general meeting of the first day that a quorum of the General Committee is not present, it shall be the duty of the President and Permanent Secretary to fill the vacancies in the Committee temporarily by selections from the lists of delegates registered as present from the States to which the vacancies belong."

Should this provision be adopted by the Association the Permanent Secretary should be authorized to substitute the name "General Committee" for "*Nominating Committee*" wherever the latter occurs in other parts of the Constitution and By-laws.

DR. EARLY moved that the consideration of the entire amendment be indefinitely postponed. The motion was lost by a vote of 24 to 48.

DR. N. S. DAVIS explained at length the intention of the amendment, at the same time giving the origin of it, and the necessity for such a change in the method of transacting the business of the Association.

The proposed amendment was strongly opposed by Drs. Larrabee, of Kentucky, Murdock, of Pennsylvania, Scott, of Ohio, Marshall, of Pennsylvania, and others; it was defended by Drs. Leartus Connor, of Michigan,

I. N. Quimby, of New Jersey, Jackson, of Pennsylvania. The amendment was lost.

DR. J. M. TONER reported that the sum collected at this meeeting for the

RUSH MONUMENT COMMITTEE

was $264.50.

A resolution referred from the Section of State Medicine was then read, to the effect that it is the duty of the United States and every other country to take measures for the removal of sources of infection within its borders.

THURSDAY, JUNE 27TH.—THIRD DAY.

The Association was called to order at ten o'clock by the President. Ex-presidents and foreign visitors were invited to seats on the platform, and Sir James Grant, of Ottowa, in a few remarks, acknowledged the courtesy.

DR. P. O. HOOPER, of Arkansas, presented the

REPORT OF THE TRUSTEES OF THE JOURNAL.

It gave a history of the six years of publication; stated that the finances of the Association had tripled, and that the *Journal* was the equal of the best in the country. The Editor's report showed that the weekly circulation was 4633 copies, out of which 4339 went to members of the Association. The total present edition was now 5000 copies weekly, and the year closed with the *Journal* free from debt. The report was accepted.

MEDICAL EDUCATION.

A resolution was presented from the American Social Science Association asking that a committee of three be appointed to consider the importance of a more thorough education of physicians for entering upon their medical studies, and of a more thorough regulation of the medical curriculum and of the placing of medical colleges under State supervision.

DR. P. S. CONNER then delivered

THE ADDRESS IN SURGERY.

(See page 708.)

THE TREASURER'S REPORT

showed a balance of $973.35, and the Auditing Committee reported that the accounts were correct.

THE REPORT OF THE NOMINATING COMMITTEE

was presented, as follows:

President.—E. M. Moore, of Rochester, N. Y.

Vice-Presidents.—J. W. Jackson, of Missouri; W. W. Kemble, of Minnesota; J. H. Warren, of Massachusetts; T. B. Evans, of Maryland.

Permanent Secretary.—Wm. B. Atkinson, of Philadelphia.

Treasurer.—R. J. Dunglison, of Philadelphia.

Librarian.—C. H. A. Kleinschmidt, of Washington, D. C.

Judicial Council.—N. S. Davis, of Chicago; J. H. Brown, of Kentucky; Wm. Brodie, of Michigan; R. C. Moore, of Nebraska; —— Gillespie, of Tennessee; T. A. Forster, of Maine, J. B. S. Holmes, of Georgia.

Trustees of the Journal.—T. O. Hooper, of Arkansas, Alonzo Garcelon, of Maine; I. N. Love, of St. Louis; W. W. Dawson, of Cincinnati.

Address in Medicine.—N. S. Davis, of Illinois.

Address in Surgery.—Hunter McGuire, of Richmond.

Address in State Medicine.—A. L. Carrol, of New York.

Committee to fill vacancies in the appointments to deliver General Addresses: Drs. William Brodie, J. H. Murphy, and I. G. Morris.

Place of next meeting, Nashville; *Time*, the third Tuesday in May.

Chairman of the Committee of Arrangements, W. T. Briggs, of Nashville.

Assistant Secretary, G. C. Savage, of Nashville.

The report was accepted and the nominees duly elected.

DR. J. C. CULBERTSON, from the Committee appointed to consider the question of

REDUCED RATES FOR TRANSPORTATION,

recommended that it shall be the duty of the Permanent Secretary to secure from railroads, steamboats, and other passenger traffic associations the lowest possible rates of fare to the place of meeting. After debate the resolution was adopted.

DR. WOODBURY, of Philadelphia, offered a resolution recommending the

ALTERATION OF THE PATENT LAWS,

so as to prevent discrimination in favor of foreign manufacturers of drugs. Adopted.

The Ophthalmological Section presented a resolution asking the Census Authorities to tabulate the

STATISTICS OF THE BLIND,

with the cause of blindness, so far as possible. Adopted.

The Section on State Medicine recommended the adoption of a resolution asking for

UNIFORMITY IN STATE MEDICAL LEGISLATION;

that a thorough preliminary examination, three courses of lectures, and an examination by the Board issuing a license be required. The license to practise be recorded in the office of the County Clerk, and that the Licensing Board be endowed with power to revoke a license on account of immoral conduct. Adopted.

The same Section also recommended that the Committee on Collective Investigation of Disease be discharged and that the Committee on Meteorology be continued with instructions to report to the Section on State Medicine at the next annual meeting.

DR. WOODBURY, of Philadelphia, moved that the members of the American Pharmaceutical Association be invited to seats on the platform, and that a committee be appointed to confer with the Association in reference to the creation of a Section of Pharmacy and Materia Medica in this Association, and to report on the second day of the next annual meeting.

The Committee on Dietetics reported progress and asked to be continued.

AMENDMENT TO THE CONSTITUTION.

DR. A. L. GIHON, of the U. S. Navy, presented an announcement changing the time of meeting from the first Tuesday to the first Wednesday in May or June.

THE PRESIDENT then introduced Sir James Grant, of Ottowa, who thanked the Association for its cordial welcome and kind treatment, and he expressed surprise and admiration at the vast amount of valuable work now being done in Medicine.

The Session then adjourned.

SECTIONS.

TUESDAY, JUNE 25TH.

SECTION OF MEDICINE.

DR. FREDERICK C. SHATTUCK, of Boston, Chairman.

THE CHAIRMAN, DR. SHATTUCK, opened the session with the following

INTRODUCTORY ADDRESS.

In obedience to the rule of the Association that the Chairman of each Section shall review the progress which the year has brought in those subjects which immediately concern his Section, he asked attention to a very brief consideration of a few of the large number of topics which might worthily find notice here.

The practice of medicine, materia medica, and physiology includes so much, the workers are so many, and the fruits of their labors are so varied and abundant that the difficulty of selection is itself an embarrassment.

The grass had scarcely grown on the grave of the treatment of pulmonary tuberculosis by gaseous enemata before another curative method was advocated by Weigert,[1] Halter,[2] and Krull,[3] a method which would seem at first sight to have claims to be called curative in that it is designed to remove the cause of the disease by destroying the bacilli *in situ*. We know that the development of this particular microbe is arrested at a temperature of 107° F.; and if, then, the intra-pulmonary temperature can be raised to or above this point and there maintained for a time the happiest results must follow. He confirmed the statements of the originators of this method as to the ability of patients to breathe with impunity air at a surprisingly high temperature. He, himself, had inhaled it at 320° F., and seen patients inhale it at 428° F. without notable inconvenience. Nearly six months ago, Dr. G. G. Sears, of Boston, began to practise inhalations of hot air on some patients in the House of the Good Samaritan. His results are now ready for publication, and it will suffice to say here that an apparatus was used devised by Mr. G. L. Kingsley of the Harvard Medical School, an apparatus which can be made by any coppersmith for $5—that patented by Weigert costs in this country $75—and that they are satisfied that the problem of intra-pulmonary direct germicidal action is still unsolved.

The pancreas, an organ the diseases of which have been until recently of pathological rather than clinical interest, is being dragged from obscurity. Senn's work on cysts of the pancreas is followed up by Fitz,[4] who has collected seventy cases of the several forms of acute inflammation of the organ, and subjected them to a rigid analysis which yields a notable increase to our knowledge. A frequent cause of acute pancreatitis seems to be the extension of an inflammation from the duodenum into the pancreatic duct and thence to the interstitial tissue of the organ; which tissue stands in such relation to the peritoneum, the retroperitoneal and retropancreatic fat tissues, as to permit the ready passage of bacteria, and thus account for the peritonitis and disseminated fat-necrosis so often resulting from pancreatic inflammation. Inflammation of this organ is doubtless much more common than has hitherto been generally supposed, and is not impossible of diagnosis. The affections with which it is most likely to be confounded, are irritant poisoning, perforating gastric or duodenal ulcer, perforation from gall-stones, and acute intestinal obstruction. The first three can be excluded by the history of the case, and the associated symptoms; the last by determining the patency of the large intestine through injection, by the seat of the pain and tenderness in the upper abdomen, and by the absence of marked tympanites. He trusted that he would be pardoned here for bringing in his own personal experience, which he did with the less hesitation, inasmuch as it is not especially to his credit. It was his lot during the past winter, to be one of six physicians and surgeons at a consultation; four of them considered the case as probably acute intestinal obstruction, one inclined to perforation, while Dr. Fitz alone held that it was acute pancreatitis, and advised against operation. Laparotomy was done, no obstruction was found, multiple fat-necrosis was seen in the omentum, and the autopsy revealed acute hemorrhagic pancreatitis.

Frerichs long ago noticed the frequency of atrophy of the pancreas in diabetes mellitus; and Lancereaux in a recent and important paper calls attention to the relation between these conditions, based on twenty cases which he has seen, with post-mortem verification in fourteen of these. Pancreatic diabetes, in contra-distinction from the other forms of the affection, is characterized by sudden onset, rapid course, and severity of symptoms with great emaciation. In two of the cases, by the way, epigastric colic led to the diagnosis of pancreatic calculus, and the autopsies brought justification.

He alluded to the experiments of Pavloff and Smirnoff,[1] which show that in rabbits whose pancreatic ducts have been ligated, regeneration of the gland may take place after a new and spontaneous communication with the intestine has been formed.

The much-vexed question as to the nature of diabetic coma, with the indications for the liability of its occurrence in any particular case, and the means for its relief, are ably considered by Kirstein,[2] who details the steps through which our present knowledge has been attained. In certain cases of diabetes the organism seems to have lost the power of burning the fatty acids, largely β oxy-butyric acid, to their normal end-products. These cases are characterized by a large increase in the amount of ammonia in the urine, rather than by any striking symptoms or complex of symptoms, and these are the cases in which coma is to be dreaded; this form of coma being the result of the formation of larger amounts of free acids than can be neutralized by the ammonia which the organism is capable of supplying, the consequent abstraction from the blood of the fixed alkalies, and thus toxæmia.

The quantitative estimation of ammonia in the urine of diabetics is, consequently, of great importance therapeutically as well as for prognosis; but, unfortunately, a method for this estimation, readily applicable to clinical purposes, is still lacking. When this large excess of

[1] Med. Record, 1888, ii. p. 693.
[2] Berl. klin. Wochenschrift, 1888, Nos. 36–38.
[3] Berl. klin. Wochenschrift, 1888, No. 39.
[4] The Middleton Goldsmith Lecture for 1888. Boston Med. and Surg. Journal. 1889, pp. 181, 205, 229.

[1] Lancet, 1889, i. p. 999.
[2] Deutsch med. Wochenschrift, April 11, 1889.

ammonia is found, the indications are to restrict the acid rather than the sugar-forming foods—meats, for instance—and to give alkalies freely. On the advent of the peculiar dyspnœa, which is apt to be the first symptom of coma, alkaline intravenous injection is to be practised, as has already been done in a small number of cases, Minkowski alone having saved his patient.

The diseases of the blood have been studied by Graeber, Hunter, and others. According to Graeber,[1] anæmia, chlorosis, and pernicious anæmia are distinguishable from one another by a count of the red corpuscles and an hæmoglobin estimation. Hunter[2] argues to show that pernicious anæmia is an entity, pathological and clinical; depends on increased blood destruction, probably in the liver; and is to be differentiated from all grave anæmias, as, for instance, those of cancer and intestinal parasites, as well as from all other primary anæmias, by the greatly increased amount of blood-pigment, responding to the micro-chemical tests for iron, found in the liver in this affection. The spleen contains no such excess of iron as does the liver, and, in the latter organ, the seat of the pigment is chiefly the outer portions and cells of the lobules, not the capillaries, a fact which goes to show that the blood destruction takes place in the liver itself, the pigment entering the cells in soluble form—hæmoglobin—and there undergoing conversion into albuminate of iron. In all cases where the blood destruction takes place elsewhere than in the liver, and pigment is deposited in that organ, it accumulates in and about the capillaries.

A paper of MacMunn,[3] of Wolverhampton, on "Addison's Disease," is noteworthy. He has studied the adrenals and urine of patients with this disease, spectroscopically; and, reviewing our knowledge of the subject, concludes that the function of the adrenal bodies is the removal from the circulation of worn-out pigments and their accompanying proteids. "When the adrenals are diseased these effete pigments and effete proteids circulate in the blood; the former, or their incomplete metabolites, producing pigmentation of the skin and mucous membrane, and appearing often in the urine as urohæmatoporphyrin; the latter producing toxic effects and leading to further deterioration of the blood with its consequences."

At the meeting in Cincinatti last year, a discussion took place on the modern methods of diagnosis in diseases of the stomach; and high hopes were expressed that by the examination of the gastric contents an ease and certainty of diagnosis in these affections were almost within our reach comparable to that which urinary analysis yields in renal diseases. The more carefully the question is studied the greater is the demand for yet further study, and the more clearly does the necessity appear for the exercise of great caution in the formation of definite conclusions at present. In the first place, it is now seen that the only single test for free hydrochloric acid which has a real clinical value, is the phloroglucin-vanillin; the tropaeolin, congo-red, methyl-violet, and other tests, either reacting to other acids or acid salts, or being often prevented from reacting by albuminoids, even when free hydrochloric acid is present. Secondly, it gradually appears that it is not safe to base a diagnosis of gastric cancer or even the persistent absence of this acid from the gastric contents withdrawn an hour after a test meal. Such absence is indicative of notable impairment of the functional activity of the mucous membrane, as from a severe catarrhal condition; or of extensive destruction of the secretory glands of the stomach, largely irrespective of the cause of the destruction. Thus, in a case of cancer sharply localized and unaccompanied by catarrh to any marked degree, free hydrochloric acid may be found in sufficient amount until the cachexia is well advanced. On the other hand, in severe but simple catarrh, especially if attended by the formation of much mucus; in atrophy of the gastric tubules; in amyloid disease of the organ; after strong caustics have done their work; even in certain cases of impaired innervation; no free hydrochloric acid may be detected, though sought for repeatedly with the utmost skill, and the aid of every appliance and reagent.

It also appears that hyperacidity, though a frequent, is by no means a constant, accompaniment of peptic ulcer. Indeed, it is impressed upon us that the pathology of an organ which varies so widely physiologically in the same individual within such short periods of time is a very complicated thing, and the lesson is again enforced that it is not in pathognomonic signs, but in careful weighing of each piece of evidence, and in the painstaking collocation of them all, that accurate diagnosis is to be attained.

During the past year the internal antipyretics have continued to seek their level. It is seen that they exert no curative influence on specific febrile processes; and, as we recognize more and more clearly that even continued fever is not productive of the changes in the parenchymatous organ with which we credited it of late years, but that the danger of these processes lies rather in the effects of toxic alkaloids on the nervous centres than in temperature elevation, as we recognize this fact, we appreciate how irrational it is to address our therapeusis chiefly to pyrexia. When the fever is in itself productive of discomfort to the patient, internal antipyretics are useful; but the indications seem to me, at least, strong that the antineuralgic and analgesic will survive the antipyretic application of this class of drugs.

On the other hand, it seems probable that the cold bath treatment of continued, and especially of typhoid fever, must be adopted and conscientiously carried out in this country. As the principles of Brand's methods gain headway in France, a country not prejudiced in favor of German leadership; as Brand's results are confirmed by other observers and in other countries; and in the face of such statistics as are put into our language by H. C. Wood,[1] Wilson,[2] and Baruch;[3] it is difficult to see how a people who pride themselves on wealth, general intelligence, and practical qualities, can be longer deterred by scepticism, or motives of convenience and economy, from the adoption of a method of treatment which reduces the mortality of typhoid fever to three per cent.

The hypnotics sulphonal and amylene hydrate have come into more general use, and prove themselves to be

[1] Fortschritte der Medicin, July 15, 1888.

[2] Practitioner, August, 1888, and Lancet, 1888, September 22 and 29, October 6.

[3] British Med. Journal, February 4, 1888.

[1] Therapeutics; its Principles and Practice, 7th ed., 1888, p. 58 *et seq.*

[2] Annual of the Med. Sciences, 1889, vol. i.

[3] New York Medical Record, 1889, vol. i. p. 434.

valuable additions to our list of remedies of this class. Unpleasant effects seem rare, while the slow absorption of the one and the rapid action of the other give each a place.

The treatment of locomotor ataxia by suspension (accidentally hit upon by Motchoukowsky, of Odessa, who was struck by the benefit derived by a tabetic patient, also suffering from spinal curvature, after the suspension required in applying a plaster jacket) has spread with great rapidity, and is being thoroughly tested in this, as well as in other countries. It is still too early to determine how useful it will prove to an unfortunate class of patients.

Morton Prince[1] was led by his duties as examiner of applicants for the Boston Fire Department, and by the frequency with which he heard temporary murmurs in vigorous men, to a study of their mode of origin. It has been believed for some years that in debilitated states leakage may take place through the mitral valve, the curtains of which are not tightly closed by reason of the insufficient force of the ventricular contraction. It will be at once appreciated that Prince's cases were the reverse of debilitated; and his ingenious explanation of the murmur heard in them is that, under conditions of great excitement, such as many of the applicants presented, the valve may be forced by ventricular contractions of a power disproportioned to the resistance of the valve. It is not easy to detect a flaw in his argument, and it seems as if he had made an important addition to our knowledge.

To sum up the results of the year, it may be stated that it has been one of real, though not of brilliant progress. Knowledge has been advanced almost all along the line, more in some parts than in others; bacteriology in its broad sense, including the chemical poisons generated by or accompanying the microbes as well as the identification and life-history of the organisms, offering an enormous field for patient research.

One fact seems to stand out in strong relief; namely, that our countrymen are on the high road leading to the attainment of a reputation for scientific research equal to that which they have long enjoyed in the more immediately practical branches of medicine and surgery.

The future glows with a promise which the achievements of the past assure us will be realized; and it is the part of each one of us, if he cannot discover, at least to do all that in him lies, to make the highest and best use of the discoveries of others more gifted than himself.

DR. CHARLES G. STOCKTON, of Buffalo, N. Y., then read a paper entitled

ON THE PASSAGE OF PORTAL BLOOD INTO THE GENERAL CIRCULATION, AND ITS PROBABLE RELATION TO TOXÆMIA.

The claim was made, first, that inosculations between the portal and the general systemic veins occur normally to a certain extent in all mammals; that as anomalous conditions these intercommunications may be extensive; that as a result of obstructive liver disease, or peri-hepatitis, new anastomoses may be set up. Next, it is claimed that the blood of the portal vein is toxic, at times extremely so. And it is held that toxæmia is prevented, in ordinary conditions, by reason of the lower blood pressure in the portal than in the general venous circulation.

When the portal circle is obstructed, portal blood enters the systemic veins without filtering through the liver, thus inducing toxæmia.

This would prove more disastrous than it does, but for the action of the blood upon the substances which are carried into the circulation. The blood having the property, when in health, of purifying itself to a certain extent, serious toxæmia does not often follow until the integrity—resistance—of the blood is diminished by long effort, or by disease; and then toxicity is made evident by symptoms.

In this connection reference is made to the coma of cirrhosis, to propeptonuria, glycosuria, and certain cachexiæ. The low pressure in the portal vein is proved by experiments of Prof. Julius Pohlman upon the lower animals.

DR. OSLER, of Baltimore, thought that the point referred to by Dr. Stockton is one of serious import. He was not sure, however, but that it is only partially true. He doubted whether the question thus received its solution. He believed that the collateral circulation is a constancy. This must meet the blocking up of the channels. The same condition obtains as in narrowing of a valve of the heart. Every one has found in post-mortem examinations extreme cirrhosis of the liver without a single symptom during life, and yet in such instances a great proportion of the portal blood passed into the general circulation. Furthermore, in cases of fibroid obliteration of portal vessels, the portal blood for years passes through the circulation.

DR. TREMAINE, of U. S. A., thought that the essayist had made a mistake in regard to the portal circulation. It is part of the venous circulation only interposing the liver. The purpose for which the venous blood passes through the liver is not perfectly understood. He would rather explain the results by a defect on the part of the action of the cells, whose office it is to eliminate the toxic elements.

DR. J. H. MUSSER, of Philadelphia, congratulated Dr. Stockton on the very ingenious arguments which he produced to maintain his thesis. The question, however, obtains so much of a physiological aspect that he felt quite incompetent to discuss it. Clinically he had never seen any cases of hepatic coma that could not be explained either by cholæmia, by uræmia, or by toxæmia due to the loss of function of the liver. This, of course, is only his personal experience. He would state that in all cases of hepatic coma there was either pneumonia or active congestion of the lungs, or some other inflammatory condition, however so small, but sufficient to overthrow the balance of the economy, and hence disturb the functions which destroy any deleterious matter in the blood.

DR. H. A. HARE said that he thought that perhaps Dr. Stockton had lost sight of the more recent studies of Schiff and Lautenbach—viz., that any capillary network is capable of rendering blood containing toxic substances innocuous. The lungs, for example, are similarly destructive agents. Capillaries are oxidizing agents, just as a shallow, pebbly brook is an oxidizing agent. That oxidization does occur is proved by the high temperature of the blood leaving the liver. Further, all peptones are

[1] N. Y. Med. Record, 1889, i. p. 421. Boston Med. and Surg. Journal, 1889, p. 109 *et seq.*

not poisonous, but it is rather the para-peptone or hemi-albumose which are abnormally absorbed and cause toxæmia. Peptones are normally absorbed, and predigested food by the rectum ought to cause toxæmia if all peptones were poisonous. Again, the argument of Dr. Stockton is faulty, since the inosculations are constant and the toxæmia is rare.

DR. LYSTER, of Detroit, stated that his attention had been directed more particularly to two cases of hypertrophic cirrhosis now under his own treatment, in whom attacks of fever occur whenever errors of digestion take place. This febrile movement he attributed to ferments or ptomaines, owing largely to the inferior quality of the bile and its lessened alkalinity.

While physiologists declare that the mercurial preparations do not promote the secretion of bile, yet it is very true that there are no preparations which are more valuable in the treatment of these cases. He is accustomed to combine the mercurial, whether hydrargyri chloridi mite or the liquor hydrargyri chloridi, with alkalies, either soda or potassa salts. He is inclined to believe with M. Dujardin-Beaumetz, that the value of mercurials is due rather to their antiseptic properties than to any specific quality. The theory of antisepsis will fully account for the great therapeutic value that clinicians find in opposition to the views of pure physiologists. The liquor hydrargyri bichloridi with bicarb potassæ, the equivalent of the seventy-fifth or eightieth of a grain of the bichloride, may be given three times daily, after meals, for several days at a time. We have in the portal circulation an impairment of the digestive fluids absorbed from the intestinal tract from the presence of the alkalies and the mercurials, and we escape the toxæmic influence on the systemic circulation which we would otherwise have frequently occurring. Cases where a comparatively large portion of the liver cells had become disintegrated in any of the forms of cirrhosis, and particularly in those cases of hypertrophic cirrhosis without dropsy and marked enlargement of the spleen, will be guided and aided along a comparatively safe path for a considerable period by these methods, even where severe hematemesis and slight attacks of paresis have occurred.

DR. CRONYN stated that Dr. Stockton's paper was very suggestive, that the coma in cirrhosis of the liver is due to the presence in the blood of some poison due to its state, consequent upon the arrest of the normal change which blood undergoes in the liver; we know that when the hepatic veins are lessened in their size derangement of their function alters the character of the bile, which, being absorbed in the form of cholesterin, brings about coma, and which he has been in the habit of calling cholestinuria, a name and condition due to the discovery of Dr. Flint, Jr. The contracted condition of the veins in the liver referred to, of course increases the size of the portal and the activity of the collateral circulation; it is therefore a matter of much interest to ascertain to what extent the intercommunicating veins may be the media of the toxæmic effects so frequently seen, especially in obstinate disease of the liver.

DR. STOCKTON felt much gratification over the discussion to which this paper has given rise. He did not consider that the criticisms in the main were contrary to the claims made in the paper. Notwithstanding the late investigations mentioned by Dr. Hare, the fact remains that peptones disappear in the blood without passing through a capillary network. The claim made that the blood pressure in the portal vein is lower than in the systemic veins, thus making a protection to the systemic circulation, was not spoken of. This should be explained. When the portal pressure becomes the higher, toxic conditions appear; and but for the action of other organs than the liver, and of the blood to purify itself, more conspicuous symptoms would occur. When the resistance of the blood fails then toxic symptoms do occur.

DR. J. H. MUSSER, of Philadelphia, read a paper on

SOME CLINICAL ASPECTS OF VOMITING.

He first called attention to the mechanism of vomiting, showing it was a reflex act due to excitation of a vomiting centre situated in the medulla, in intimate relation to the respiratory centre. Motor influences are transmitted from the centre to the abdominal and thoracic muscles, to the œsophagus and cardia, causing its relaxation, and to the pyloric end of the stomach, causing its closure. Excitation of this centre is made by impulses derived by afferent nerves from various organs of the body. It was shown that the vomiting may be toxic in origin, may be from organic change about the centre, as tumor, abscess, etc. And lastly, it is reflex from affections of various organs, all of which were detailed.

Attention was called to morning vomiting and other causes than those usually mentioned were detailed, as in sewer-gas poisoning, of vomiting due to subacute naso-pharyngeal catarrh and to ovarian and uterine vomiting, etc.

Some special clinical aspects of vomiting were then detailed, and it was insisted upon that in affections of various organs vomiting may for some time be the only marked symptom.

Regarding the relation of this symptom to cerebra hemorrhage the following conclusions were presented:

1. That sudden vomiting, occurring in the aged, painless, with or without nausea, with no evidence of indigestion or acute gastritis, the ejecta composed of mucus or watery fluid, is often one of the first symptoms of cerebral hemorrhage.

2. Such vomiting is not attended with the usual symptoms of relaxation, but with the sthenic phenomena which usually attend apoplexy.

3. If the usual collapse symptoms occur in a person of this age, the vomiting is now likely to be of uræmic origin.

4. If the respiration is altered in rhythm or is of normal frequency or slowed, because of the intimate relation of the centre for vomiting and the pneumogastric centre, the cause is doubtless a central hemorrhage. Hurried breathing attends the acute vomiting of other causes.

5. The occurrence of vertigo is not of special significance.

6. The prognosis is very grave in such cases.

Habit-vomiting, so-called, was then described.

DR. STOCKTON stated that without doubt vomiting due to naso pharyngeal catarrh occurs, and that if the stomach be carefully examined evidences of chronic gastritis will be found.

DR. I. E. ATKINSON, of Baltimore, then read a paper on

SOME OF THE RARER AND GRAVER FORMS OF CINCHONISM.

This paper treated of blindness, deafness, and general poisoning from the use of excessive doses of cinchona preparations, and was intended to show that the lavish administration of these remedies so frequently resorted to is not justifiable on account of the dangers entailed. The writer had collected more than fifty recorded cases of quinine amaurosis and showed that impairment of vision is probably much more often produced in this manner than is generally believed. Usually blindness only follows excessive doses, but definite results cannot always be attributed to definite doses, and blindness has been known to follow as small a dose as twelve grains. It may develop slowly or, as is usual, suddenly. The duration of total blindness may be from a few hours to many weeks. It is never permanent. Perfect vision, however, is never recovered. Careful observation has shown that the symptoms are characteristic and pretty constant. They are: 1. Transitory blindness, complete or incomplete. 2. Color-blindness. The color sense usually is restored ultimately. 3. Wide dilatation of the pupil, which is irresponsive to light. 4. Pallor of the optic disks and extreme diminution of the retinal vessels. 5. Contraction of the visual field. This never entirely disappears. Impairment of hearing with tinnitus is almost always present, but rarely lasts more than twenty-four hours. A number of variations from the type are noted. Idiosyncrasy undoubtedly plays an important part in the development of these symptoms. The pathogenesis of quinine amaurosis is not understood. The effect is probably a local one exerted upon the blood-vessels of the part. The dose competent to produce blindness varies greatly. Though blindness probably always results when the dose has been lethal, as much as one ounce failing to produce general poisoning has been known not to affect vision. In a number of cases patients have become blind after thirty to sixty grains given within a few hours.

Complete permanent deafness has never been known to follow the use of quinine, and permanent impairment of hearing from the same cause is very uncommon, not so uncommon, however, as is generally supposed; Roosa, Burnett, Greene, and others, have given abundant reasons for their belief that permanent partial deafness may occur. In these cases, however, a decided hyperæmia of the auditory apparatus is produced. Experiments of Kirschner, Roosa, and others, upon animals are quoted as corroborative.

General poisoning from cinchona preparations is rarely fatal. Baldion reported a death from twenty grains to a child, six years old, given in forty-eight hours. Deaths have also followed the administration of one hundred grains given in two days, and of one hundred and twenty grains in doses of five grains repeated every hour. A number of cases of alarming symptoms following not excessively large doses are given. In more severe cases the patient's condition may border upon collapse. There will be extreme prostration, with or without loss of consciousness, or coma, lowered temperature, gradual weakening of the pulse and respiration, chilling of the entire surface, copious cold sweats, deafness, dilatation and immobility of the pupils, blindness, lividity. Convulsions have been reported in a goodly number of cases. The exact nature of these convulsions has not been determined. Experiments upon animals by Baldion, Rochefontaine, Chirone and Cusci, Soulier, and others, show that quinine has a special convulsivant action. Brunton has also shown that convulsions may precede death, as a result of asphyxia.

DR. LYSTER, of Detroit, remarked regarding the use of quinine in large doses, that he quite agreed with the speaker who preceded him, that only such portion of the dose as was required to neutralize the malarial intoxication was appropriated, any excess of dose was eliminated from the system usually without any markedly injurious effect. The hypodermatic use of the quinine should be made in suspected cases of the congestive or malignant variety in regions where such cases were met with.

DR. ROBERT T. EDES, of Washington, then read a paper on

HYDRONEPHROSIS AND RENAL ATROPHY; ESPECIALLY AS RESULTING FROM FUNCTIONAL DISTURBANCES OF MICTURITION.

The ordinarily recognized mechanical causes of hydronephrosis were stated. Systematic authors admit that there are cases not explicable by any of these causes. Two cases were reported. I. A boy with frequent micturition but probable retention of urine, who presented symptoms of interstitial nephritis, and was found, after death, to have a large bladder, dilated ureters, atrophied kidneys, and hypertrophied heart; no mechanical obstacle being present. II. A little girl with albumin, casts, and pus in the copious, light urine, was noticed to have some difficulty in micturition. After dilatation of the urethra, the casts soon disappeared and later the albumin. The back pressure of urine necessary to produce moderate hydronephrosis with renal atrophy is not great. The bladder is a portion of the apparatus necessary for the discharge of the urine, and is not to be regarded simply as a passive reservoir. In order that it may perform its function properly a certain balance between the nervo-muscular apparatus promoting the discharges (detrusor urinæ) and that restraining it (sphincter vesicæ) is necessary. If this balance is disturbed either by paralysis of the detrusor or by spasm of the sphincter, pressure is thrown back toward the kidneys and dilatation of the passages takes place, followed by renal irritation and destruction of the parenchyma. In the constantly recurring spasmodic action of the bladder in cystitis, with the consequent exaggeration of the intravesical pressure, the same thing may occur, with this modification, that the urine which is backed up, being mingled with inflammatory products, the result is a pyonephrosis, rather than a hydronephrosis.

It is suggested that some cases of interstitial nephritis in the young, even when accompanied by hypertrophy of the heart, and not differing greatly in symptoms from the disease which is more familiar in persons in middle life, may have a local origin in unrecognized cases of this kind rather than the constitutional changes so prominent in the etiology of the Bright's disease of later years. A few cases are to be found in medical literature bearing on the subject of the paper.

SECTION OF SURGERY.

DR. N. P. DANDRIDGE, of Cincinnati, Chairman.

THE CHAIRMAN in his

INTRODUCTORY ADDRESS,

referred briefly to the remarkable advances that have been made in the treatment of fractures, displacements, and diseases of the spine. In connection with Pott's disease he reported the case of a child two years paralyzed, in which entire recovery, now continued four years, ensued upon careful restoration of the continuity of the cord. The various ways in which fracture may produce pressure upon the cord with consequent paralysis were considered. Operative interference must be considered first in regard to the advisability of immediate active efforts at relief.

He then reported five cases which had recently come under his observation. In some of them the application of a plaster jacket was all that was required; in others, the spinous processes were removed by the trephine. He preferred suspension by hammock and the application of a plaster jacket. Sufficient suspension can be made and an anæsthetic can be safely used if desired. The method of using the hammock was explained. It is simple, and in only one case was any pain complained of. A case was reported in which marked improvement followed simple hammock suspension. Suspension as now practised, is, however, a method so new that we cannot now determine its value.

Early operative measures—resection—should not be too readily laid aside, and in any case in which all other methods have failed, it should be tried. Although he had made several operations he had not yet secured a complete recovery. Since, however, recovery has been almost complete in many cases, since some lives have been prolonged by it, and since the operation is not now one of very great difficulty, he strongly recommended its adoption.

DR. H. H. SMITH, of Philadelphia, read a paper entitled

CONCUSSION OF THE SPINE IN ITS MEDICO-LEGAL ASPECT.

In introducing the subject he briefly reviewed the history of the establishment of the liability of railroads and other corporations for injury in England. He also announced the status of the various States of our own country on the subject.

In all cases of alleged injury of the spine with compression or concussion, frauds are always to be suspected, since statistics show that three-fourths of such cases have been found of that character; a few illustrative cases were then reported.

Admitting the liability of a surgeon to be misled in his diagnosis, let us inquire if there is any violence capable of producing concussion and compression of the cord. This must as yet be admitted as possible. The force required to produce it is, however, greater than is generally supposed.

The neuropathic disturbances which frequently follow injuries may be due to a neurotic condition of the patient, inherited or acquired; in the latter instance frequently as a result of sexual excesses. Charcot pronounces these disturbances hysteria. The speaker, therefore, concluded that real spinal concussion from injury is exceedingly rare. It is always rapidly followed by muscle-wasting. Its development is prompt—a few hours or days—after the injury and not weeks after, when his mind has had time to brood upon it.

Illustrative of the prompt development of symptoms in cases of injury of the cord, several cases were reported with the results of autopsy and microscopic examination. The following conclusions were announced:

1. Concussion of the spine is no longer a matter of doubt but may sometimes occur as the result of various forms of violence, there being nothing peculiar in the application of the force to the body, as the result of derailment or collision of railroad trains.

2. The pathological changes noted in the molecular structure of the cord as the result of shaking, jarring, or so-called concussion of the cord, when attended by paralytic symptoms, may be due to hemorrhagic effusion or be shown post-mortem, in softening or localized or limited atrophy. In cases due to hemorrhage the symptoms may be improved by judicious treatment and permanent disability prevented.

3. The possibility of preëxisting neurasthenia, or hysteria, or fraud on the part of a claimant, should be carefully noted in forming a diagnosis in these cases.

4. As the question of permanent disability, justifying exemplary damages, is frequently raised in claims of the kind alluded to, it should be recollected in forming a prognosis that numerous cases are reported of recovery or marked improvement in a few weeks, and one in three years, even after the occurrence of paralysis.

5. No physician should go into court and swear that a plaintiff has had a concussion of the spinal cord or of its nerves, unless he has proved the disturbance of the normal functions of the cord, as shown in sensation or motion, or both, and that the symptoms appeared *soon* after the injury.

DR. H. JUDD, of Galesburg, Ill., followed with a paper on the same subject. The facts stated in this paper, he said, were drawn solely from his own experience as a surgeon, from cases resulting from or suggested to the patient by accidents; cases in which all objective signs of injury, if any ever existed, had passed away; cases involving the question of supposed or alleged concussion of the spine and which were under observation from a medico-legal aspect; cases in which compensation for personal injury was sought.

His excuse for reading a paper on these cases, he said, was the fact that the question of injury or disease of the spinal cord, if it can exist, is becoming a question of business interest to the surgeon. It is a condition which is frequently estimated in the currency of the country.

The essayist then based his estimate of these cases upon the symptoms which accompanied these injuries in the times which preceded the enactment of laws making corporations liable to the injured. We might, he said, permit these people who practise frauds upon corporations to go on and rob them, saying it was none of our affair, but it is our duty to endeavor to prevent it, since it only trains and encourages malingering and dishonesty. Several fraudulent cases were then reported.

In conclusion, he stated that he questioned the possibility of concussion of the spine.

DR. WILLIAM BRODIE stated that he believed that such a condition as concussion exists. He did not believe that a correct diagnosis could be arrived at in many cases, short of a jury trial. There is only one way to treat these cases, and that is, for the railway surgeon to tell the companies to settle at once, within twenty-four hours, if possible.

DR. B. A. WATSON, of Jersey City, thought that we are too apt to consider concussion of the spine the condition described by Mr. Erichsen. If any such condition in the spine analogous to concussion of the brain exists, it is exceedingly rare. If any rupture of the ligaments, with laceration of bloodvessels exists, it is too rare to be considered. No physician should testify to the existence of concussion of the spine in a case presenting no objective signs. From his own experiments he had concluded that most of these cases suffer from lacerations of visceral organs much more frequently than from concussion of the spine. Laceration of the lung with the production of infarction is very common; laceration of liver, spleen, kidney, and even rupture of bladder occur.

DR. MURPHY, of Minnesota, stated that he had been interested in this subject a great many years, but that he did not meet with the success reported in the paper of the Chairman. All of the six cases he had treated during the last winter with plaster and other methods died.

DR. PANCOAST, of Philadelphia, thought that it should be borne in mind that the people had rights to be protected, and that we should not yield too far in our desire to protect corporations from imposture. He thought the law is at fault in demanding to know whether there is a permanent injury. Men should be protected and recompensed for temporary injuries as well as for permanent conditions. He objected emphatically to the suggestion of a former speaker, that the ligaments may stretch. Ligaments, healthy or diseased, *never* stretch.

DR. PANCOAST moved that the discussion of the paper of the Chairman, Dr. Dandridge, be made the order of the day. The motion being carried, he spoke freely on the subject of the rupture of ligaments, claiming that it is due to the tearing of the fibrous connective tissue.

DR. MAURICE RICHARDSON, of Boston, then read a paper on the

SURGERY OF THE PERIPHERAL NERVES.

It consisted of a *résumé* of the operations that have been made on the peripheral nerves for various forms of neuralgia. The first operations described were those which had been performed upon the inferior dental nerve, with a view to its division, stretching of it, or its removal.

The treatment of neuralgia of the sciatic nerve by stretching of the nerve is not held in favor since it has had a fair trial. It should, however, in all probability be resorted to in cases of inveterate neuralgia of the nerve. From original investigations on the cadaver, he did not believe it possible to exert any traction on the spinal cord by traction on the sciatic. Traction on the nerves of the upper half of the body he believed was of no value whatever. Neurectomy he considered the proper and only efficient means for their relief.

The last subject discussed was nerve-suture, with a report of cases. In a large majority of cases union was perfect and function reëstablished. In no case, however, was there evidence of the union by first intention alleged by some. If a large piece of nerve has been lost, he preferred the introduction of catgut to that of nerve-fragment. Nerve-grafting was also referred to.

In conclusion, the essayist described the condition of nerve which he had found in nerves affected by neuralgia in which pain is complained of, as in the musculo-spiral, the median, the ulnar, in cases having an obscure history of traumatism.

DR. PANCOAST expressed surprise that the essayist had attributed to Mr. Victor Horsley the operation of exsection of a portion of nerve for neuralgia of the trigeminus. This operation was first performed, to the surprise of the profession, by his distinguished father, whose aim it was to remove as much as possible of the nerve, even endeavoring to withdraw a portion of it from within the oval foramen before dividing it. He performed the operation several times, as had also the speaker.

DR. DEAVER, of Philadelphia, complimented Dr. Richardson on his easy method of reaching the temporo-maxillary nerve, and coincided with him in his preference for neurectomy to stretching.

DR. W. O. ROBERTS, of Louisville, reported several cases of operation on the inferior dental nerve, with the dental engine.

DR. GORDON, of Portland, Me., reported a case in which repeated stretching of the sciatic nerves yielding only transitory relief, the anterior crural nerves were stretched with the result of apparent cure.

DR. BURNS reported two cases of excision of the superior maxillary nerve in one of which there had been subsequently removal of the inferior branch.

DR. RICHARDSON explained that his paper had nothing to do with Horsley, and did not claim any assertion like that referred to by Dr. Pancoast. As he had read only a small portion of his paper, he could readily understand any misunderstanding which had arisen in the discussion. In conclusion, he described the method, preferred by but not original with him, for removal of the infra-orbital nerve and some of the descending branches of Meckel's ganglion through the orbit.

SECTION OF OBSTETRICS AND DISEASES OF WOMEN.

W. H. WATHEN, M.D., of Louisville, Chairman.

DR. HORATIO R. STORER, of Newport, R. I., spoke of

THE MEDALS OF BENJAMIN RUSH, OBSTETRICIAN.

The paper called forcible attention to the fact that to Dr. Rush was due the first suggestion, or rather prophecy, of obstetrical anæsthesia. He quoted various passages from Rush's works which demonstrated that he was a skilful obstetrician. In the title of one of his papers he closely associates the pains of labor with its dangers, announces that they can both be lessened, recognizes that they are the potent cause of subsequent disease, and teaches their prevention. Particular attention was called to the following statement of Rush: "I have expressed a hope in another place that a medicine would be discovered that should suspend sensibility altogether, and leave irritability or the power of motion unimpaired, and thereby destroy labor pains altogether." The importance of this extraordinarily interesting passage seems to have been recognized only by Channing, Gaillard Thomas, and Faget of New Orleans. It was lost sight of entirely during the ether-chloroform controversy. Exhaustive research has been made by the author, aided by Dr. Toner, of Washington, which has resulted in failure to find any other reference to it, and similar want of success has followed the studies of Drs. Chadwick, Gaillard Thomas, and Mundé, to whom the author appealed as

those who were most familiar with modern obstetric literature.

Dr. Storer exhibited enlarged photographs of the two extremely rare medals of Rush which are in his collection, and expressed the hope that they would be of use in giving the correct features of the "American Sydenham" when his monument, undertaken by the Association, shall be raised, and that the paper itself might tend toward a better appreciation of the true merits of the man himself.

DR. W. W. POTTER, of Buffalo, read a

NOTE ON THE USE OF BORACIC ACID IN GYNECIC PRACTICE.

He first used boracic acid as a substitute for iodoform on account of the bad effect of the latter upon the hands. He found that boracic acid delayed decomposition of uterine and ovarian discharges, and that a tampon could be retained for a week without discomfort or annoyance when this antiseptic was used. In his experience it had also been of service in cases in which sterility existed, and he believed it exerted such chemical action upon the uterine secretions that fecundation became possible. He had also found it one of the best dressings for operative wounds of the female genitals.

INVERSION OF THE UTERUS; REDUCTION BY A NEW METHOD; EXHIBITION OF THE INSTRUMENT.

DR. H. O. MARCY, of Boston, said that inversion may be partial or entire, and is probably more frequent than is usually supposed, especially in the practice of midwives. The shock and hemorrhage attending the accident are usually severe, and it is not unusual for the patient to succumb within a very short time after the accident has occurred. Hence the principle that reduction should be accomplished as soon as possible, the patient being then kept upon her back, with the vagina tamponned for a sufficient period. The methods of reduction of Emmet, Noeggerath, and Thomas were described and commented upon. Spontaneous reduction could occur, but it was thought that it rarely did. The first systematic attempts at reduction were reported by Prof. J. T. White, of Buffalo, in 1858, Tyler Smith reporting his method in the same year. The method of Winey, of Boston, was thought to be sound in principle, and it had been successful in practice. Barnes's suggestion, that lateral incisions should be made in the cervix before attempts were made at reduction, was also a good one, and had been followed by good results. Thomas's method was once considered bold, though ingenious, but now that laparotomy is so frequently performed, it would be adopted with less hesitancy. It has been demonstrated, however, that it may be unsuccessful. The author's method was then described, the principle being that traction was applied to the cervix while an equal amount of pressure was applied to the fundus, the opposing forces harmonizing and quickly effecting reduction. The present perfected instrument was reached after a long series of experiments, and has been tried in one case, in which complete reduction was effected in twenty-six minutes. The method consists in passing four stout ligatures through the cervical tissue at equal distances from each other, and these are attached to two parallel rings or hooks upon the side of a long shaft, the hooks working in slots. At the end of the shaft is a hard-rubber cup which receives the fundus. The shaft contains a screw, which is worked by a nut at its lower extremity, the shaft being graded in pounds up to fifteen, according to the number of turns of the screw. As the screw is turned the cervix is dragged down, and at the same time the fundus is pushed upward and through it.

DR. JOSEPH PRICE, of Philadelphia, reported

A SERIES OF FIVE HUNDRED CASES OF CONFINEMENT IN A MATERNITY.

There had been no deaths and no septicæmia in this series, the institution in question being the Preston Retreat, in Philadelphia. Absolute cleanliness of person and surroundings, abundance of water, soap, and pure air were the means which had yielded such gratifying results. Of these cases fifty-two had been cases of instrumental delivery, many of the mothers having contracted pelves. There was one case of placenta prævia, three of twins, also several face and breech presentations.

DR. FRY, of Washington, read a paper on the

APPLICATION OF FORCEPS IN TRANSVERSE AND OBLIQUE POSITIONS OF THE HEAD, WITH A DESCRIPTION OF A NEW FORCEPS.

He had sought to obtain the views of many practitioners as to their method of using forceps, and had addressed them in a circular letter. This brought eighty-two responses, of which forty-two stated that the custom was to apply the instrument to the sides of the head; thirty-one others applied to the sides of the pelvis, and in the others the method was indifferent. The author's instrument was curved on the flat, and could be applied in either transverse or oblique positions to the bi-parietal diameter of the fœtal head. Many cases in which there was death or paralysis of the fœtus, were those in which the blades of the ordinary instrument were not at the sides of the pelvis, its pelvic curve being a source of injury when applied in the conjugate diameter. The posterior blade of the author's instrument has both a cephalic and a pelvic curve, the anterior has only the cephalic curve. The instrument has also a screw for the regulation of the compression and a traction rod which is attached to the anterior blade and aids in bringing the head down to the brim of the pelvis.

DR. WILLIAM S. STEWART, of Philadelphia, read a paper entitled

WHEN SHOULD THE OBSTETRICAL FORCEPS BE USED, AND WHAT FORM OF INSTRUMENT IS REQUIRED?

Such conditions as eclampsia, exhaustion, uterine inertia, large or impacted fœtal head, called for the use of obstetrical forceps. The membranes must also be ruptured, the os dilated and its lips retracted; there must be a knowledge of the position of the child, the bladder and bowels must be empty. It would seem to be self-evident that one should use that instrument with which he was most familiar or which he found most effective. An objection to the ordinary forceps with crossed handles was that, while it was easy of application for the first position, it was difficult or dangerous for the second. Hence the author's instrument, in which the handles are parallel and do not cross. It has also a second joint to the handles and hand-piece, the traction being entirely accomplished with the latter. The blades

may be those of the Simpson, or Hodge, or Wallace forceps. The traction and compression with the author's instrument are regulated by the resistance offered; also the principal joint in the handles is not fixed, so that there may be very complete adaptation of the head to the pelvis. Either blade can be applied first, and, in the author's opinion, the instrument insures greater safety to the mother and child than by customary means, and greater ease to the accoucheur.

SECTION OF DISEASES OF CHILDREN.

J. A. LARRABEE, M.D., of Louisville, Chairman.

DR. E. F. BRUSH, of Mt. Vernon, N. Y., read a paper on

COW'S MILK FOR INFANT FOOD.

The medical profession, he said, is agreed that nothing equals good cow's milk as a food for infants, and therefore it is to be regretted that attention has not been given by the profession to reforming the breed of cattle and the handling of milk rather than to artificial substitutes. In milk for infant feeding there should be considered (1) the variety of fats, (2) the amount of albuminoids, (3) of salts, (4) the handling of the milk, and (5) the health of the cow.

First. As regards the fats, the usual processes of chemical analysis lead to an underestimate of the fats in cow's milk, and that of these fats we have no late authoritative analysis, a neglect on the part of chemists which leaves us in doubt as to which of the fatty acids are the mischief-makers in milk. These fatty acids have more to do with the development of poisons than the albuminoids have and are the cause of digestive derangements. Second. The albuminoids vary considerably with the time or habit of extracting the milk, milk extracted every two hours not being likely to possess as much or as ripe albumen as that drawn off every twelve hours. In health the albuminoids are constant, but materially affected in disease. This affection is not surprising when we examine the mammary sources of milk, for then there are found inflammations, calculi, clots of fibrin, etc., while the gland is at the same time subject to infiltrations, tubercular deposits, and eruptive diseases. In all cases variations in the amount of albuminoids must be ascribed to sickness. Third. The salts also have not lately been determined by chemists and we do not know how constant the occurrence of these salts may be, though we can assert that they are influenced both by the health and the food of the animal. Hence the land on which a cow is pastured will indicate fairly what we may expect to find as salts. The nutritive value of the sugar is overestimated, as is shown by the milk of carnivorous animals. Condensed milk or concentrated sugar of milk is not to be recommended as an addition to milk, but cane sugar preferred. The chemist's ideal food is a failure and the idea that milk must contain such and such constituents in such and such proportions is a popular error. Fourth. The cow must be studied, "for milk is the scavenger of the cow's body," and if it will not nourish the infant she is sick or the milk badly handled. A faulty condition of the cow is indicated by alteration, the albuminoids, bad food by the loss of fats and salts, and bad handling by the ptomaines. The cow has an abnormally high temperature, her organs of generation are in unnatural activity and she is made a machine for producing milk. It is no wonder then that she is, as a rule, an unhealthy animal. Owing to the low price of milk the delicate animal is rarely fed properly, and the same cause compels the farmer to utilize every drop of milk, be the cow sick or well. Good food is the prime essential for producing good milk. Fifth. Milk is affected by its surroundings in the cow-house, and the method of getting rid of the odor thus acquired by saltpetre cannot be too severely censured, for the addition of the nitre united with the glycerides may produce poisons approximating to tyrotoxicon. No chemical substances should ever be added. Milk should not be beyond a few hours distance, for long travel must deteriorate milk. Light, like heat, hastens decomposition, therefore glass bottles should not be used. The milk ought not to be given to the infant warm, for then it coagulates like too-old milk. Sterilized milk may be employed if we abandon all hope of improving the quality of milk.

The remedies for these evils are a better cow, one not closely inbred, well-fed with good, sound food, and well attended to. The cheapness of milk is the reason why we have not better milk and the inferior milk suggests the use of substitutes. If the price of the latter were added to the price of such milk the extra money would enable the farmer to buy better cows and better food and improve the quality of his products. This he ought to be compelled to do. Let us not recommend patent baby foods, but good, high-priced milk, and then if any trouble arises lay the blame on the milkman. Dairies for supplying infants' food should be under strict sanitary supervision. Such an ideal dairy should consist of spayed cows.

(Dr. Bush was given a special vote of thanks for his valuable paper.)

DR. J. A. JEFFRIES, of Boston, said a large number of women cannot feed their babies and many will not; hence the necessity for a proper supply of cow's milk. It is important to obtain that with fat as near like the mother's as possible, that the proper adipose tissue may be deposited in the infant's body. Recent analyses show that both the fats and albuminoids vary with the condition of the mother. A child did badly: the mother's milk was found too high in albuminoids, and on dieting the mother the child recovered. Milk sugar is a valuable aliment and not so liable to fermentation as cane sugar. Where milk can be got to the child within three or four hours after drawing, sterilization is not so important, but when, as in cities, twelve or twenty-four hours must elapse, it should be sterilized immediately on being drawn, and then forwarded in sealed bottles.

DR. EARLY, of Pennsylvania, considered diseases of cattle a frequent source of contamination of milk and referred to his investigations of dairy farms near Philadelphia and Camden, where milk from animals sick with pleuro-pneumonia was supplied to consumers.

DR. SEARS, of Texas, doubted if disease was conveyed by milk; certainly not to adults.

DR. CHRISTOPHER, of Cincinnati, related the results of his inspection of dairy farms near Cincinnati. Cows fed on distillery slops were much handsomer in appearance than those properly fed, and their milk was richer in cream. They urinated almost constantly. He attributed this to their confinement setting up fatty tissue changes. There is a peculiar condition of the albumi-

noids in this milk leading to rapid decomposition. He did not agree with Dr. Brush that the fatty acids were the poisonous elements. Ptomaines are nitrogenous bodies and can only be formed from volatile fats. There is none. The fatty acids are sometimes volatile, but this does not interfere with chemical analysis.

DR. BRUSH, in closing the discussion, gave prominence to the points that living foods contain some element lacking in preserved foods. Condensed milk may be perfectly pure, but it has gone through a process that robs it of some nutritive quality, So with various artificial foods, chemically desirable. The distillery-stable cows are sleek-looking, but they are œdematous, not fatty. It is a fact of observation that the amount of fats and salts in cow's milk can be altered by feeding, but it is only disease that causes a variation in the albuminoids given by any individual animal.

WEDNESDAY, JUNE 26, 1889.

SECTION OF OBSTETRICS AND DISEASES OF WOMEN.

DR. W. H. WATHEN, of Louisville, read a paper on the

PATHOLOGY OF ECTOPIC PREGNANCY AND PELVIC HÆMATOCELE.

He based his argument upon the following premises, viz.:

1. The ovum is never impregnated in the uterine cavity, and the conjugation of the male and female elements must take place before or just after the ovum enters the tube.

2. Ectopic pregnancy is always primarily tubal, with the possible exception of ovarian pregnancy; the tube usually ruptures before the fourteenth week into the folds of the broad ligament or into the peritoneal cavity.

3. Abdominal pregnancy cannot occur except as a result of primary or secondary rupture, and if the villous or placental attachments are destroyed the ovum immediately dies, because it cannot form secondary attachments to other structures.

4. If, in rupture into the peritoneal cavity, the ovum retains villous or placental attachments, it may be possible, under certain conditions, for the pregnancy to continue, though this is not probable. If the amnion is ruptured in the early months, the embryo or fœtus will die.

5. So-called interstitial pregnancy does not always rupture into the peritoneal cavity, though it usually does.

6. If we define pelvic hæmatocele as an encysted or confined tumor formed of blood, then intraperitoneal hæmatocele is not possible.

Tait is almost alone in his belief that in normal pregnancy the conjugation of the two elements takes place in the uterus, and the author does not think his premises upon this subject are correct nor his conclusions logical. His assertion that the spermatozoids cannot pass out through the Fallopian tubes unless disease has destroyed the ciliated epithelium, is based upon no positive evidence and is contrary to what has been proven in observations upon the lower animals. The ciliated epithelium has no effect upon the movements of the spermatozoids, and their inherent power of movement is proven in those cases in which women have become pregnant with a nearly imperforate hymen, and with atresia vaginæ with only a small fistulous and diseased canal leading to the uterus. If the ovum is not impregnated before, or just after, it enters the tube, degenerative changes will destroy its vitality before it reaches the uterus. If, after impregnation has occurred, the surfaces of the endometrium were not in immediate contact, the ovum would gravitate to the lower segment of the uterus, causing placenta prævia, or else it would pass out into the vagina. The ovum cannot form villous attachments until it is held immovably in the maternal structures, and this is not possible, except in the tube or in the uterine cavity. The reports of ovarian pregnancy are numerous, but they seem to be based upon insufficient evidence. In none of them has ovarian stroma been found unless confined to one side of the sac, and this may easily be due to tubal pregnancy in which rupture has occurred into the folds of the broad ligament.

Parry's statistics of ovarian or abdominal pregnancy were all collected from imperfect or mutilated records made by men of no experience in microscopical and pathological research, and they are practically of no value as proof that pregnancy may primarily occur outside the tube. Ectopic pregnancy may occur at any point in the tube, from a short distance within the fimbriated extremity to the uterine cavity, and is caused by partial or complete closure of any part of the tube, which is usually the result of desquamative salpingitis. It is improbable that tubal pregnancy continues in any case until term, rupture usually occurring prior to the fourteenth week either into the folds of the broad ligament or into the peritoneal cavity. Primary intra-peritoneal pregnancy is impossible because the ovum cannot be held securely in any one place and form the necessary attachments. The ovum precipitated into the peritoneal cavity dies, therefore, for want of nutrition.

The placenta in extra-peritoneal pregnancy may attach itself to the uterus, omentum, intestines, pelvic and abdominal wall, etc., by stripping off and carrying before it a layer of peritoneum, and many such cases have been reported as abdominal pregnancies. In the latter months of pregnancy the ovum may possibly continue to develop in the abdomen after rupture of the amnion. In intestinal pregnancy there is *usually* rupture into the peritoneal cavity, but *not always* as Tait asserts.

Pelvic hæmatocele sustains such intimate relations to ectopic pregnancy that it is not easy to describe the pathology of the one without referring to the other. Pelvic hæmatocele is usually considered an encysted, intra- or extra-peritoneal blood tumor in the pelvis which may extend into the abdominal region. The author does not believe it possible for an accumulation of blood in the peritoneal cavity to become encapsulated so as to form a well-defined tumor in the pelvic or abdominal cavity. If it were possible to have encysted intra-peritoneal hæmatocele, why does it never occur after abdominal sections for the removal of a diseased tube, ovary, or uterus? Encysted hæmatocele may result from a sudden cessation of a pseudo-menstruation that sometimes follows laparotomy, but in such cases the blood is effused into the areolar tissue under the peritoneum, and not into the abdominal cavity. A blood tumor may extend above the pelvis, and even to the umbilicus, but this does not indicate that the hemorrhage has been into the peritoneal cavity. In intra-peritoneal hemorrhage no well-defined tumor can be

felt *per vaginam* or by abdominal palpation, while in extra-peritoneal hemorrhage an error in diagnosis is hardly possible. Intra-peritoneal hemorrhage is almost always caused by primary or secondary rupture of a tubal pregnancy, and the shock and other evidences of internal hemorrhage will usually point to the cause.

The treatment indicated is abdominal section and ligation of the bleeding vessels. Encysted hæmatocele may be caused by sudden metrostaxis of normal menstruation, or pseudo-menstruation following abdominal or pelvic operations, or by rupture of a tubal pregnancy into the folds of the broad ligament. The symptoms are sudden access of pain, faintness, accelerated pulse and, possibly, elevation of temperature. The tumor may not be felt above the pelvis, or there may be a well-defined, fluctuating tumor extending as high as the umbilicus. The diagnosis is less readily made if the case is not seen until some days after the hemorrhage has occurred. Extra-peritoneal hæmatocele usually results in speedy recovery, with suitable care and precautions, the blood being absorbed. Suppuration or rupture into the peritoneal cavity rarely occurs. Should there be symptoms indicating that either of these conditions has occurred, the abdomen should be opened, the cavity thoroughly cleansed, and a drainage tube introduced. If fluctuation is felt *per vaginam* the tumor should be entered through the vaginal vault, otherwise laparotomy should be performed.

DR. T. PARVIN, of Philadelphia, in a paper on

CASUISTRY IN OBSTETRICS,

said that questions of conscience must always be recurring in the course of the practice of obstetrics. It might be said that all law in all civilized lands is only casuistry. Among the questions of conscience which are proposed to the obstetrician for answer is that of Comte: If the object of pregnancy is the perpetuation of species, and cohabitation during pregnancy is a source of danger to the fœtus, should cohabitation be allowed? The author would answer this question decidedly in the negative, considering that it is improper, immoral, unjust, and injurious to both mother and fœtus. Another pertinent question was:

"Should a doctor inform his patients as to the means of preventing pregnancy, admitting that he had the knowledge?" The reply was, that such information would usually be unwise, for though there might be excuse for such information on the score of serious disease in the parents, or inability to protect and support children should they be born, such information was usually extensively disseminated, and its influence would be pernicious. The question as to the propriety of artificial miscarriage is also an important one, and the justifiability of the operation was recognized in such cases as those in which blindness would result from the continuation of the pregnancy.

Such operations as amputations of the pregnant uterus were considered justifiable in certain cases of great pelvic deformity, and the testimony of Tait in this matter gives weight to such an opinion. It must also be admitted that there are also cases in which embryotomy or craniotomy, or some other destructive operation, is not only justifiable but imperative in the interests of a parturient woman. This statement did not at all conflict with that which had reference to the usefulness of the Cæsarean section. The latter operation should be preferred to craniotomy in those cases in which the conjugate measured two inches or less.

DR. WILLIAM H. PARISH, of Philadelphia, then read a paper on

PELVIC ABSCESS IN THE FEMALE.

He believed that the existence of pus in the areolar tissue was rare compared with its existence in the pelvic cavity or the organs of the pelvis. He would divide pelvic abscess into three varieties: 1, areolar abscess; 2, intra-tubal and ovarian abscess; 3, intraperitoneal abscess. The first form is usually a sequel of labor, the latter having been severe and accompanied with more or less injury to the uterus, the cervix, the vagina, etc. Secondary areolar abscess may occur, however, from gonorrhœa, from hæmatoma, etc. He believed that so-called chronic cellulitis, without precedent inflammatory disease of the pelvic organs of some kind, did not exist. The second form usually involved both the tubes and the ovaries, and was more frequently seen than the first. Associated with this there might be a plastic inflammatory condition of the pelvic peritoneum. The term pyo-salpinx gave little idea of the extent of this form of pelvic abscess which was possible. Intra-tubal abscess was very frequently due to gonorrhœa, which frequently occurred in young married women, though it might not appear for some months after marriage. It might also come from various forms of traumatism, from septic infection other than gonorrhœa communicated from the uterus.

Septic salpingitis and ovaritis frequently occurred after abortion, in fact rather more frequently than areolar abscess. The careless use of uterine sounds and tents was also responsible for many cases of this condition. In treating either of these two forms of abscess a high degree of operative skill is requisite. Another requisite, in order to a successful issue, is perfect drainage. Aspiration of such cases is usually not advisable, and is fraught with danger. If there is bulging and fluctuation in the vagina, an incision through its wall is indicated. If by such incision an intra-tubal abscess is opened, it may be recognized by the fact that the walls of the abscess sac are smooth to the feel, and also do not collapse. In most cases it is quite inadvisable to operate through the rectum. In any case in which an incision is made, care should be taken to avoid pulsating vessels. Likewise, in placing a drainage-tube it must be provided that it does not come in contact with the wall of a large-sized bloodvessel. If the abscess involves the tube, the necessary treatment is laparotomy with removal of the diseased structures, and the insertion of a drainage-tube. Cases have been reported in which intra-tubal abscess has been cured by drainage through the uterus, but such cases are believed to be of very rare occurrence. The method of stretching the edges of the abscess-sac into the abdominal wall, as advocated by Tait, is not considered desirable for most cases.

The intra-peritoneal variety of pelvic abscess is that in which the pus is in the pelvic cavity. It is not as frequent as that which proceeds from diseased tubes. It may occur from the leakage of pus, from a pyo-salpinx into the peritoneal cavity, from a peritonitis, from lymphatic inflammatory conditions, from initiating ligatures after abdominal section, etc. The quantity of pus in the

abscess may be small or it may be very large. In one of the author's cases the quantity was two gallons. In all cases of this variety there should be early operation. Should a fistulous tract result it not infrequently indicates want of skill on the part of the operator.

DR. JOSEPH TABER JOHNSON, of Washington, then read a paper on

TETANUS FOLLOWING OVARIOTOMY.

It was primarily the report of a very rare case. The patient was sixty years of age, and an abdominal section was believed to be indicated. A small ovarian cyst was removed, a drainage-tube being introduced, and all progressed favorably until the twelfth day. At that time symptoms of tetanus appeared which increased in intensity until the fifteenth day, when the patient died, with evidences of heart failure. Careful investigation was made, but it was believed that the author's hospital, in which the operation was performed, was in a perfectly sanitary condition. The author's horses were also without disease, and the author's hands were free from injury; the horses had not been driven by him for some days. This complication has reported only a very few times, and has usually occurred within a very few days after the operation. Bernouil recently announced his belief that it was communicated to human beings by horses, the medium being a bacillus. This should teach all who do abdominal sections to avoid the possibility of infection from horses.

DR. A. REEVES JACKSON, of Chicago, read a paper on

THE INJURIES OF THE BLADDER DURING LAPAROTOMY, INCLUDING A REPORT OF SIXTY-SEVEN CASES.

The data in the author's paper were collected from various sources. Some of the cases had been already published, but the greater number had been obtained through personal correspondence with the operators in whose practice the accidents had happened, and were now made known for the first time. Of course, it was admitted that the list was incomplete. Some surgeons manifest a reluctance to make known the various mishaps which occur in their operative experience, perhaps with the belief that a knowledge of them might injuriously affect their reputation among their colleagues. The author considered this an error of judgment. Surgeons should be honest as well as skilful, for their integrity would be quite as likely to receive recognition as their dexterity, and was certainly of greater value.

Considering the conditions under which bladder injuries may occur during laparotomy, it was not necessarily discreditable to any surgeon to meet with them, for they might not be due to any carelessness or lack of skill on his part. In many of the cases cited no possible degree of diligence could have averted the accident. Adhesions of the peritoneal surface of the elongated bladder to the anterior abdominal wall, frequently could not be known in advance, and their existence was only demonstrated after the viscus had been opened. The use of the catheter as a means of diagnosis was not always available, because the compression of the bladder against the pubes might prevent the introduction of the instrument beyond that point.

Certainly, this attempt should always be made in any case of suspected difficulty, and would seem to be even a proper and unobjectionable routine method.

Another useful precaution was to avoid prolonging the abdominal incision toward the pubic bone until the opening into the peritoneum had permitted the relations of the bladder to be ascertained. The mortality of the cases in which the bladder had been opened was large, being about thirty per cent., but this was due to the complicated and serious character of the cases in which the accident had occurred, the consequently increased length of the operation, and the greater danger from shock, rather than to the mere vesical injury.

The latter did not seem, in itself, to be very important as influencing the recovery of the patient, but should a fistula occur it would signify great discomfort, and also chagrin and annoyance to the surgeon. Inasmuch as the bladder was recognizable with more difficulty when empty than when full, it would be better in cases which presented doubtful features to commence the operation with the viscus more or less distended. When its position had become known, it might be emptied by an assistant.

As to the treatment, if an opening has been made it should be closed at once with a continuous suture of catgut or fine silk, the serous surfaces of the wound being inverted, and a permanent catheter being used for two days. At the end of that time it may usually be dispensed with. If the wound exceeds two or three inches in length the catheter should be retained three or four days longer; and in all cases the catheter should be retained as long as the urine contains blood. Should urine appear at the abdominal wound subsequent to the operation under conditions which would make it dangerous or inexpedient to reach the seat of the vesical injury, the catheter should be used continuously or at short intervals to lessen the quantity of urine which escapes through the fistula and thus aid in its closure. If the fistulous opening shows no disposition to close after two or three months, the edges should be freshened to the depth of half an inch or more and stitched together.

In exceptional cases it may be expedient to affix the wounded edges of the bladder within those of the abdominal incision, in the manner detailed by Thomas and others, but as this plan must interfere with the subsequent contractility of the bladder, it is not to be commended as a customary practice. The suturing and dropping of the bladder is the better method.

NEWS ITEMS.

The New Jersey State Medical Society.—At the late meeting of the New Jersey State Medical Society the following officers were elected for the ensuing year:

President.—B. A. Watson, M.D., of Jersey City.

Vice-Presidents.—James S. Green, M.D., of Elizabeth; E. J. Marsh, M.D., of Paterson; and George T. Welch, M.D., of Keyport.

Corresponding Secretary.—William Elmer, Jr., M.D., of Trenton.

Recording Secretary.—William Pierson, M.D., of Orange.

Treasurer.—W. W. L. Phillips, M.D., of Trenton.

Standing Committee.—T. J. Smith, M.D., of Bridgeton; D. C. English, M.D., of New Brunswick; and J. G. Ryerson, M.D., of Boonton.

After ratifying some changes in the By-Laws, and the adoption of some routine business, the meeting adjourned, to meet next June at Schooley's Mountain.

Association of Acting Assistant Surgeons.—The Association of Acting Assistant Surgeons of the United States Army held its first annual meeting at Newport, R. I., on Monday evening, June 24, 1889. Seventy-seven members have been enrolled. The following list of officers was elected for the ensuing year:

President.—A. Reeves Jackson, M.D.

Vice-Presidents.—J. L. Ord, A. J. Comfort, D. S. Lamb.

Treasurer.—R. J. Dunglison.

Registrar.—Benjamin L. Holt.

Recorder.—W. Thornton Parker.

Council.—H. M. Deeble, S. S. Turner, W. E. Sabin, H. R. Porter, J. P. Pratt, H. E. Turner, S. B. Stone, John S. Warren, S. O. L. Potter, E. W. Thompson, and John T. Nagle.

Applications for membership should be addressed to W. Thornton Parker, M.D., Narragansett Pier, R. I.

An Oxford Degree for Dr. Billings.—According to the *New York Medical Journal*, the University of Oxford will confer an honorary doctorate on Dr. J. S. Billings, U. S. A., in consideration of his valuable labors in connection with the Army Medical Museum and Library, the *Index Catalogue*, and the Johns Hopkins Hospital.

The Development of Cholera Bacilli.—If LOEWENTHAL'S experiments prove anything as regards the generation or evolution of the cholera poison in man, it is that certain states of the digestive system and of digestion are necessary for its production, and that if these conditions are not present, the comma-bacilli, which are presumed to be concerned in the manufacture of the virus, fail to produce it. Certain observations of Dr. D. D. Cunningham's, which are published in the most recent issue of the "Scientific Memoirs," edited by the Surgeon-General, would indicate that the development of these bacilli outside of the body also depends on favoring conditions.

"Dr. Cunningham conducted a series of experiments on the behavior of choleraic comma-bacilli in soil and water of various qualities, and he shows that, under ordinary circumstances, even in an endemic locality such as Calcutta, there is very little probability of their multiplying to any great extent, or persisting for any prolonged period in soil or water to which they may gain access. It further appears that this is due to their incapacity to hold their own in the struggle for existence to which they are exposed with the schizomycete, and other organisms normally present in the media, as, where the latter are sterilized, the persistence and multiplication of commas occur just as they would do in any artificial sterilized medium of suitable quality. Dr. Cunningham, taking these results along with others of a similar nature obtained by other observers as a basis, argues that, even if it should be granted that the comma-bacilli are the efficient cause of choleraic symptoms, they must be regarded as holding a very secondary place in the causation of epidemic diffusion of the disease, and that it is peculiarities in conditions of locality which must be regarded as of primary importance, seeing that without these the bacilli would neither be able to establish themselves in sufficient numbers and with sufficient persistence, nor be able, even could they do so, to affect the population in epidemic proportions. The practical conclusion which is arrived at is, that it is to improvements in local sanitation, and not to the enforcement of quarantine regulations, that we must look as a means of preventing the occurrence of spreading epidemics.—*The Indian Medical Gazette*, March, 1888.

The Nationality of Viennese Medical Students.—Of the 3185 medical students at present studying in the University of Vienna, 530 are foreigners. Of these, Russia furnishes 118; America, 105; Roumania, 78; Servia, 50; Germany, 46; England, 40; Bulgaria, 18; Greece, 13; Turkey, 10; Switzerland, 12; France, 5; Belgium, 8; Italy, 9; Sweden, 3; Holland, 5; Africa, 1; and Australia, 3.—*The British Med. Journal*, May 11, 1889.

The Pope's Physician.—According to the *Medical Record*, DR. GUISEPPE LAPPONI, a young and distinguished graduate of the Bologna school, has just been appointed body physician to his Holiness Pope Leo XIII., in succession to Dr. Valentino, deceased.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 18 TO JUNE 24, 1889.

By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted WILLIAM H, FORWOOD, *Major and Surgeon*, in S. O. No. 118, May 22, 1889. from this office, is further extended four months on surgeon's certificate of disability.—Par. 14, *S. O. 142, A. G. O., Washington*, June 20, 1889.

CORSON, J. K., *Major and Surgeon.*—Granted leave of absence for one month, with permission to apply for an extension of one month.—Par. 2, *S. O. 65, Headquarters Department of the Columbia.*

FISHER, WALTER W. R., *Captain and Assistant Surgeon.*—The leave of absence for one month granted by S. O. 30, *c. s.*, Department of California, and extended fifteen days by Par. 3, S. O. 37, *c. s.*, from these Headquarters, is further extended fifteen days, —Par. 1, *S. O. 41, Headquarters Division of the Pacific, San Francisco, California*, June 12, 1889.

By direction of the Acting Secretary of War, the following changes in the stations of officers of the Medical Department are ordered:

TEN EYCK, BENJAMIN L., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered to Fort Leavenworth, Kansas.

GARDINER, JOHN DE B. W., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Leavenworth, Kansas, and ordered to Fort Reno, Indian Territory.

WYETH, M. C., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Huachuca, Arizona Territory, and ordered to Fort McDowell, Arizona Territory.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort McDowell, Arizona Territory, and ordered to the Presidio of San Francisco, California.

Par. 3, S. O. 132, June 8, 1889, is so amended as to direct P. G. WALES, *First Lieutenant and Assistant Surgeon*, to report to Fort Huachuca, Arizona Territory, for duty, in place of the Presidio of San Francisco, California.—Par. 2, *S. O. 138, A. G. O.*, June 15, 1889.

By direction of the Acting Secretary of War, leave of absence for two months is granted to HENRY S. T. HARRIS, *First Lieutenant and Assistant Surgeon.*—Par. 13, *S. O. 140, A. G. O.*, June 18, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 22, 1889.

BEARDSLEY, GROVE S., *Medical Inspector.*—Granted a year's leave of absence, with permission to leave the United States.

FEREBEE, N. M., *Surgeon.*—Detached from special duty at the Naval Academy, and wait orders.

ROTHGANGER, GEORGE, *Assistant Surgeon*.—Ordered to the Naval Hospital at Mare Island, California.

INDEX.

ABBE, intestinal anastomosis, 589
Abdomen, gunshot wounds of, 607
Abdominal section, two cases of, 597
Abortion produced by iodoform tampons, 682
Abscess, pelvic, 730
Abscesses, cold, iodoform injections in, 713
Acetic acid and gynecology, 325
Acne, treatment of, 242, 547
Actinomycosis in man, 76, 230
of skin, primitive, 694
Addison's disease, 96
Adduction, crural, prevention and treatment of, 315
Adenitis, acute multiple, 639
Adenoid growths of naso-pharynx, 690
Adler, a case of Hodgkin's disease, 41
hystero epilepsy in man, 262
Age of parents, influence of, upon vitality of children, 56
Agnew memorial fund, 410
Air-passages, œdematous disease of, 639
Air-tract, upper, chronic disease of, 640
Albumin in urine, determination of, 43
Aliment, a new, 377
Allen, surgical treatment of tonsils, 678
Alopecia areata a communicable disease, 127
treatment of, 630
Alum in bread, 112
Ambulation, automatic, 334, 391, 418, 474
Amenorrhœa and permanganate of potassium, 326
American Association of Genito-Urinary Surgeons, 559
Climatological Association, 671
Laryngological Association, 580, 638
Medical Association, 633, 687, 699, 714
Neurological Association, 687
Physiological Association, 110
Surgical Association, 493, 580, 606
Amylene hydrate, poisoning by, 156
Anæmia, hypodermatic injections of blood in, 683
pernicious, treatment of, 125
Anaërobic cultures, 347
Anæsthesia, mixed, 605
Anastomosis, intestinal, 589, 610
Aneurism and epilepsy, 325
arterio-venous, treated with ligature of common carotid, 415
popliteal, treated by digital compression, 379
Anglo-American Medical Society, Continental, 441
Anodal diffusion, 250
Anthrarobin, 243
Antifebrin, poisoning by, 45
Antipyrin, contraindication in menstruation, 215, 587
poisoning, a case of, 461
Antisepsis as practised by Trelat, 626
dry, 681
obstetrical, practised by nurses, 103
ocular, 17
Antiseptic, lanolin-sublimate an, 657
Antiseptics, relative power of different, 44
Aphasia, right-sided, in a left-handed person, 484
Aphthæ, saccharin for, 517
Apomorphia hydrochlorate, 127
Apoplexy treated by compression of carotid, 353
Armamentarium chirurgicum, 441
Ascites, calomel and digitalis in, 713
Association of Acting Assistant Surgeons, 732
Medical Superintendents of Institutions for Insane, 557
Asthma due to derangement of stomach, 513
Astley-Cooper prize, 688
Atelectasis, pulmonary, 331
Atrophy of the optic nerve treated by suspension, 489
progressive muscular, 221

BACON, treatment of acute inflammation of the middle ear, 345
Bacteria, anaërobic, cultivation of, 670
pathogenic, in drinking-water, 382
Baer, treatment of bleeding fibroids of uterus, 365
Baldness, treatment of, 125
Baldy, abdominal section, 597
Barium, clinical application of, 223, 364
Barker, Fordyce, diploma of, 513
Barr, yellow atrophy of liver, 540
Barton, digital divulsion of pylorus, 561
Berlin, health office of, 672
Beyer, antipyrin in pneumonia, 646
Bidet, use of, in surgery, 37
Bigelow, treatment of uterine fibroids, 536
Billings, an Oxford degree for, 732
plans and purposes of Johns Hopkins Hospital, 505
Billroth's sixtieth birthday, 588
Biniodide of mercury as an antiseptic, 521
Birth, sextuple, 21
Bishop, the mind-reader, autopsy of, 662
Bismuth salicylate in diseases of children, 298
Bladder, atony of, rhus aromatica in, 100
injuries of, during laparotomy, 731
male, photography of, 54
Blennorrhagia, lanolin in, 627
salicylate of mercury in, 603
Blepharitis, ciliary, treatment of, 16
Bodamer, actinomycosis in man, 230
Boils, application for, 682
Bone-grafts, reposition and preservation of, 75
Bones, acceleration of growth of, 15
Boracic acid, uses of, 240
Bougies, grooved, for applying ointment to urethra, 698
Bovine tuberculosis, 335
Bowels, rupture of, from violence, 689
Brain tumor, 29, 502
curious injury to, 504
Bread containing alum, 112
for diabetics, 629
Breast, carcinoma of, 295, 614
treatment of hypertrophy of, 658
Bright's disease and its treatment, 477
British Medical Association, memorial to, 53
Brose, restoration of lacerated cervix uteri, 122
Bruen, Dr. E. T., 420, 476
Buboes, suppurating, treated with iodoform, 682
Bulkley, unusual methods of acquiring syphilis, 134, 233, 263

CÆCUM, excision of, 601
Cæsarean section for cancer of cervix, 337
Calcis, excision of, 688
Calculi, biliary, cause of, 408
renal, formation of, 556
Calculus, large, in child, 466
Calomel, diuretic action of, 439
Canadian Medical Association, 523
Cancer, artificial inoculation of, 556
extirpation of, in different regions, 669
open, plastic operation in, 684
Cancerous patients, nutritive changes in, 557
Cancrum oris, corrosive sublimate in, 629
Carbon disulphide, therapeutics of, 437
Carbonic oxide poisoning, transfusion in, 157
Carbuncle treated by iodoform, 325
Carcinoma, inoculation of, in animals, 668
Cardiac cavities, variations of pressure in, 557
contractions, 557
dilatation, management of, 192
Carlsbad salts, artificial, 630
water, influence of, on urine and excretion, 134
its influence on uric acid, 137
Carotid, compression of, in the treatment of apoplexy, 353
Cataract, antipyrin in, 518
artificial maturation of, 270
Catgut rings in intestinal surgery, 409
Cerebellum, tumors of, 219
Cerebral cortex, lesions of motor zone of, 614
localization and eye symptoms, 19
tumor, trephining for, 692
Cerebro-spinal meningitis, prophylaxis in, 127
Charcot, clinic on nervous diseases, 145
Charity, abuse of, 28
Cheever scholarship, 251
Chittenden, observation on the digestive ferments, 173
Chloroform, as an internal remedy, 377
dangers of, in laparotomy, 575
inhalations in pneumonia, 682
perfumed, 683
Chlorosis treated with defibrinated blood, 46
treatment of, 297
Cholelithotomy, case of, 679
Cholera bacteria and creolin, 629
bacilli, development of, 732
treated with salol, 270
Chorea and antipyrin, 325
Chrome-yellow poisoning, 85
Chyluria, non-parasitic, 242
Cigarette-selling in New York, 700
Cinchonism, rarer forms of, 724
Clairvoyance and malpractice, 616
Club-foot, treatment of, 542, 552
Cocaine, poisoning by, 44, 271, 387, 390
toxic action of, 628
Codeine and its uses, 380
Coe, early recognition of cancer of cervix, 169
Cohen, gouty diathesis, 533
Colds and clothing, 308
Colic, nephritic, treatment of, 214
College of Physicians and Surgeons, New York, 716
Colon, gangrene of, 349
Colorado, climate of, 57

Coma, diabetic, 269, 629
Concussion of spine, medico-legal aspect of, 725
Confinement, 500 cases of, 727
Congress of American Physicians and Surgeons, transactions of, 522
of German Society of Gynecology, 440
of German Surgeons, 275
of Internal Medicine, Eighth, 131
Conjunctivitis, granular, corrosive sublimate in, 657
naphthol in, 630
Conner, Address in Surgery, 708
Constipation in females, 682
Consumption, cottage-plan treatment of, in Colorado, 480
pulmonary, a neurosis, 564
Consumptives, pocket sputa cup for, 637
Cornea, transplanting of, 490
Corns, treatment of, 630
Cornutin in obstetrics and gynecology, 546
Coryza, acute, treatment of, 71, 126
atrophic, 158
snuff for, 683
Cough, hysterical convulsive, treatment of, 489
Cramp, flute-player's, 489
milkmaid's, 519
Crandall, asthma, 513
Creasote, formulæ for administration of, 73, 684
in tuberculosis and catarrhal affections, 185, 406
Cremation, popularity of, 644
Crepitant râle, significance of, 501
Creolin as an antiseptic, 160, 602
in diphtheria, 682
in flatulency, 682
in ophthalmology, 157
pills, 269
poisoning, case of, 156
Cresol, salicylate of, 269
Croup, mercurial vapor in, 576
rectified oil of turpentine in, 378
spasmodic, opium in, 311, 417
Currier, efficacy of filters, 425, 445, 456
disorders of menstruation, 205
Cyanosis, cardiac, 73
Cystitis, treatment of, 74, 159, 351
Cysts, sublingual sebaceous, 691

DA COSTA, gustatory paralysis, 517
Dana, chronic headaches of functional origin, 291
Dandridge, introductory address in surgery, 725
Dawson, President's Address, 701
Day, idiopathic acute parotitis, 213
Deale, intramuscular injections of mercury in syphilis, 343
Deaths, accidental, among infants, 329
Deaver, arthrectomy of knee-joint, 645
Decussation of fibres of voluntary movement, 160, 224
Delafield, treatment of acute and subacute nephritis, 287
Dentition, cocaine for, 242
Diabetes and tumors, 271
antipyrin in, 518
mellitus, 558
relative value of opium, morphine, and codeine in, 158
treated with thymol, 269
Diabetics, bread for, 629
Diagnosis, accuracy in, 196
Diarrhœa, summer, prevention of, 203
treatment of, 72
Digestion, disorders of, in children, treatment of, 46
influence of exercise on, 630
Digestive tablets, 576
Digits, supernumerary, case of, 307, 417
Diphtheria, antiseptic treatment of, with creolin, 682
vapors in the treatment of, 377
Diphtheria, cause, mode of propagation, and prevention of, 361
epidemic, new method of treatment of, 379
etiology of, 113, 131
hydrogen peroxide in, 550
local treatment of, 520, 575, 666
microbe of, 269
prevention of, 605
prophylaxis of, 656
treated with a spray of hydronaphthol, papain, and hydrochloric acid, 213
benzoate of sodium, 43
borax, 101
chloride of iron, 216
iodoform, 102
phenic acid, 126
quinoline, 518
salicylic acid, 187, 520
treatment of, 602
Disinfection of instruments, 140
of surgeon's hands, 54
pastilles for, 546
Dorland, helps in gynecological practice, 149
Drainage and drainage tubes, 609
of houses, 111
Dropsy of pregnancy, 158
Dysentery, creolin in, 658
Dysmenorrhœa, black oxide of manganese in, 516
manganese compounds in, 367
and permanganate of potassium, 326
Dyspepsia and chloroform, 326
infantile, 548
Dysphonia spastica, 641
Dyspnœa, cardiac, 558
Dystrophies, 22

EAR, middle, treatment of acute inflammation of, 345
Eclampsia associated with rachitis, 471
infantum in its relation to fever, 109
Eczema, of the genitals, treatment of, 187
of the nails, 408
treatment of, 15, 74, 157, 465
Education, medical, of women, 440
Electricity as a therapeutic agent, 339
in gynecology, 673
in nervous diseases, 356
Empyema, new operation for, 16
Ensiform cartilage, resection of, 378
Enteric fever, Ehrlich's diagnostic sign of, 573
Enterostomy, gastro-, 658
Epilepsy and aneurism, 325
hysterical, in man, 262
treated by faradic electricity, 16
with simulo, 472
treatment of, with borax, 512
trephining in, 351, 489
Epistaxis, treated with oil of turpentine, 72
Erysipelas and erythema, 638
iodine applications in, 520
local antiseptic treatment of, 466
picric acid in, 519
treated with ammonium sulpho-ichthyolicum, 45
treatment of, 298, 574
Esbach's method of determining proteids in urine, 416
Eseridin, 377
Etherization, some abuses of, 296
Eucalyptus oil in phthisis, 241
Exalgine, 713
Excretion, acid, 134
Execution by electricity, 54
Explosions, pharmaceutical, 224
Exposition, Paris, Medical Congress during, 672
Eye diseases, antisepsis in, 184
colchicin in, 350
massage in treatment of, 217
symptoms and cerebral localization, 19
Eyeball, operation for excision of, 17

FALX cerebri, a bony, 320, 417
Feet, sweating of, treatment of, 15, 682
Femur, epiphysis of, compound separation of, 552
Ferments, digestive, observation on, 173
Fever, cold water treatment of, 408, 551
Filters, efficacy of, 425, 445, 456, 467
Filtration, for purifying water supply, 549
Fisher, abscess of liver, 12
Fisk, the climate of Colorado, 57
cottage treatment of consumption in Colorado, 480
Fistula, entero-vesical, 108
perineal urinary, treatment and cure of, 296
Fitz, acute pancreatitis, 197, 225, 256, 281, 309
Flatulency, creolin in, 682
Flute-player's cramp, 489
Food and drug inspection in New Jersey, 522
Forceps, immediate application of, 51
obstetrical, when should they be used, 727
Freckles, removal of, 464, 630, 700
French Congress of Surgery, 551

GALL-BLADDER, statistics of operations on, 155, 242
surgery of, 693
Galvanism in gynecology, 193
Gangrene of colon, 349
of extremities, symmetrical, 668
of hand, dry, 306
Garrett, case of Addison's disease, 96
Gastralgia, treatment of, 127
German imperial health office, 53
Surgical Congress, 559
Gibier, etiology of yellow fever, 91
Gift of Dr. Holmes, 162
Gleitsmann, hyperplasia of pharynx and naso-pharynx, 63
Glycerine suppositories, 214, 463
Goelet, electricity in gynecology, 673
Gonorrhœa, treatment of, 348
Goodell, Cæsarean section for cancer of cervix, 337
Gouty diathesis, therapeutics of, 533
Graduates in medicine, 300, 329, 383, 410, 469, 493
Gustatory paralyses, peripheral, 517
Gynecology and male sterility, 160
boracic acid in, 727
creolin in, 657
electricity in, 673
helps in, 149
Gynecological operations, sequelæ of, 397, 411, 473

HÆMATOMA of both ovaries, 51
of the septum narium, 485
Hæmaturia in pregnancy, 487
Hæmoptysis, treatment of, 186
Hand, dry gangrene of, 306
Hands, care of, 54, 186, 630
Hare, barium chloride in heart disease, 183
treatment of arrested respiration in anæsthesia, 236
Harvard University, gift to, 274
Head, transverse and oblique positions of, application of forceps in, 727
Headaches, chronic, of functional origin, 291
Heart disease, chloride of barium in, 183
rupture of, 129
survival after wounds of, 545
Hemichorea following cranial injury, 502
Hemiplegia, 223
Hemorrhage into the centrum ovale, 360
in typhoid fever, treatment of, 488
supra-dural, 359
Hemorrhoids treated with dilatation of anus, 683
Henry, Bright's disease and its treatment, 477
Hernia, diaphragmatic, 627

Hernia, gangrenous, treatment of, 583
inguinal, treatment of, 245
radical cure of, 415
various cures for, 582
Hill, borax in epilepsy, 512
Hip and knee disease in the same limb, 332
disease, abscess of, 137
-joint, resection of, 670
-joint, tuberculous disease of, eradication of, 273
Hystero-epilepsy in man, 262
Hodgkin's disease, 691
a case of, 41
Holmes, Dr., an analysis by, 551
Holt, prevention of summer diarrhœa, 203
Homœopathist, the title, 531
Homœopathists abroad, 672
Hospital collection in New York City, 329
House-drainage, 111
Hydatid, suppurating, of abdomen treated during pregnancy, 214
Hydrocele, failure in radical cure of, 543
operative treatment of, 71, 604
Hydrochlorate of apomorphia, 127
Hydrochloric acid poisoning, 160
Hydronephrosis and renal atrophy, 724
intermittent, 43
Hydrophobia, Pasteur's method against, 276
Hydrops articuli, 306
Hydrosalpinx, 138
Hydroxylamin in skin diseases, 241
Hyoscin, 17, 518, 547
Hyperostosis of facial bones, 642
Hysterectomy, vaginal, 39, 191
Hysteria, traumatic, 108
treated by faradic electricity, 16
Hysterionica Baylahuen, 579

ILEUM, resection of a portion of, 326
Ileus, pathology of, 528
treatment of, 486, 530
Illuminating internal organs by a new method, 139
Inebriety, study of, American Association prize for, 21
Infant mortality, diminution of, 243
Infants, accidental deaths among, 329
food, cow's milk for, 728
nursed with asses' milk, 336
Infantile diseases treated with salol, 45
In-growing nails, treatment of, with tinfoil, 684
Inhaler, a simple, 629
Inoculation, prevention of, lecture, 687
International Medical Congress at Berlin, 716
Intestinal catarrh, naphthalin in, 42
obstruction, 692
Intestine, secondary resection of, after gangrene, 240
Iodides, diagnostic value of tolerance of, in syphilis, 15
Iodoform, anti-tubercular power of, 610
deodorizer for, 548
suppurating buboes treated with, 682
Iodol as an internal remedy, 17, 378
Iowa, medical course in, 579
Iron in diseases of children, 71, 627
Itch treated with naphthol, 74

JACKSON, artificial menstrual suppression, 375
Jaundice from retention, treatment of, 438
Jefferson Medical College, 551
professorship of surgery in, 579
Jeffries, a new method of making anaërobic cultures, 347
Jenks prize, 190
Johns Hopkins Hospital, 494, 505
staff of, 606, 615
University, 587
Johnstown, disaster at, 631, 634
medical notes from, 662
relief of medical practitioners, 661
Johnstown, sanitary situation at, 659
John Wells Memorial Hospital, 606
Joint disease, salicylic acid in chronic tuberculous, 489
Joints, inflammation of, iodoform in, 628
Journalism, medical, a protest, 392
Juniper berry as a diuretic, 127

KANSAS Medical Society, donation to, 661
Keen, W. W. retirement of from Woman's College, 588
nephrorrhaphy for floating kidney, 431
elected professor at Jefferson, 551
Kefir in children's diseases, 548
Kidney and spleen, simultaneous extirpation of, 380
division of capsule for nephralgia, 607
floating, nephrorrhaphy for, 431
malignant tumor involving, 442
palpation of, 490
Knee and hip disease in the same limb, 332
extirpation of diseased capsule of, with preservation of crossed ligaments, 692
-joint, arthrectomy of, 645
neuralgic affections of, 615

LABOR, rare complication of, 195
Lacaze prize, 383
Lancet medical fund, 105
Langenbackhaus committee, 21
Lanolin and perchloride of mercury, 548
ointments, 352
-sublimate, an antiseptic, 657
Lantanin, a new antipyretic, 46
Laparotomies, six, performed upon one patient, 392
Laparotomy for ectopic pregnancy, 126
successful cases of, 52
Laryngeal growth, recurrent, 642
phthisis, local treatment of, 269
tuberculosis, menthol in, 576
Laryngectomy for cancer, 166
Laryngismus stridulus and eclampsia associated with rachitis, 471
Laryngitis, nitrate of silver in, 665
Larynx, action of intrinsic muscles of, 641
epithelioma of, treatment of, 713
extirpation of, for cancer, 557
tracheotomy in chronic diseases of, 464
tuberculosis of, 664
Laxative powder, 576
Laut, resuscitation after apparent death, 97
Lens, extraction of dislocated, 139
Leprosy in Mexico and Sandwich Islands, 695
in Russia, 700
spread of, in the United States, 697
Lesions, focal, of the temporo-sphenoidal lobe, 416
of sacral and lumbar plexuses, 648
Leucorrhœa, treatment of, 681
Lingual artery, abnormal, 305
Liniment, stimulating, 466
Lips, diagnosis of cancer of, 613
Lithæmia in upper air passages, 666
Lithotomy, suprapubic, 138
Liver, abscess of, bursting into pericardium, 380
cirrhosis of, curability of, 125
yellow atrophy of, 540
Locomotor ataxia, suspension treatment of, 294, 323
Lomb prize essay, 355
London, healthfulness of, 105
Loomis, needs of scientific medicine, 141
Lung, abscess of, 12, 247, 351
affections, creasote in, 17, 406
Lupus, treatment of, 270, 712

MACCOY, sarcoma of tonsil, 119
Maine Medical Association, 634
Malaria, arsenic in, 548
Malaria, quinine hypodermatically in, 407, 630
Malpractice suits, 191
Mammary cancer, recurrence of, 614
gland, angioma of, 670
Manganese, black oxide of, in dysmenorrhœa, 516
Manley, case of double fracture of skull, 151
Martin, arrested respiration in anæsthesia, 236
Massage, influence of, upon urine, 575
with a glass rod, 384
Mastoid process, trephining of, 185
Mays, pulmonary consumption a neurosis, 564
McCall, salol in vomiting of pregnancy, 570
McPhedran, sudden death in typhoid fever, 483
Meats, canned, 644
Meat and milk, tuberculosis in, 188
Medical examiner's bill, 167, 381, 389, 503
journalism, a protest, 392
men, honors conferred upon, by Queen Victoria, 662
practice, State regulation of, 104, 274
Press of Western New York, 687
Review, The Weekly, 687
royalties, 84
Medico-chirurgical College of Philadelphia, 671
Meigs, treatment of spasmodic croup with opium, 311
Mellin's food, counterfeiting of, 54
Meningitis, cerebro-spinal, prophylaxis in, 127
Menstrual suppression, artificial, 375
Menstruation, contraindication of antipyrin in, 215
disorders of, 205, 192
precocious, 575
Menthol, its internal use, 377
Mercurial preparations, diuretic action of, 16
soap, 127
Mercury salicylate, therapeutic uses of, 185
Metrorrhagia, treatment of, 683
Michigan, Medical Department of University of, 606
Microbes, pathogenic, duration of life of, in water, 350
Midwifery, antiseptic, at Liege, 464
Migraine, treatment of, 187
Milk, asses', for nursing infants, 336
infection, legislation for prevention of, 616
in infant feeding, 214
sterilized, 139
Mills, lesions of the sacral and lumbar plexuses, 648
Mind-cure only extreme homœopathy, 560
Minnesota, results of the State medical examination in, 504
Mitchell, improved form of suspension treatment, 399
Montreal general hospital, bequest to, 275
Morbid growths, early diagnosis of, 606
Morphine, a new antidote for, 377
Morphia, used hypodermatically, 16
Morton, treatment of club-foot, 542
Mothers' medicines for nursing, 408
Motor disturbance, reflex, 330
Mouthwash, antiseptic, 713
Movement, voluntary, decussation of fibres of, 160, 224
Mydriatic, new, 630
Myelitis, experimental study of, 221
Myrtol as a disinfectant of the respiratory passages, 216
Myxœdema, 670

NÆVUS, treatment of, 612
Nails, eczema of, 408
ingrowing, treatment of, with tinfoil, 684
Nancrede, failure in radical cure of hydrocele, 543

Naphtha-poisoning in rubber factories, 140
Naphthol, 518
Nasal affections, treatment of, 215, 375
obliquity, correction of, 692
Naso-pharynx, adenoid growths of, 690
Navel of the newborn, treatment of, 437
Nephralgia, division of capsule of kidney for, 607
Nephrectomy, 441, 609
Nephritis, treatment of, 287, 301
Nephrorrhaphy, 431, 442
Nerves, extirpation of, 670
peripheral, surgery of, 726
Nervous diseases, electricity in, 356
Neuralgia, trigeminal, 128
Neurasthenia, urinology of, 14
Neurosis, traumatic, 667
New Jersey, Medical Society of, 687
State Medical Society of. 731
New York Academy of Medicine, 687
College of Physicians and Surgeons, 687
County Medical Society sustained, 448
Hospital library, 503
State Commission in Lunacy, 606
Medical Society, 112
Night-sweats treated with chloral hydrate, 45
sulphonal, 407
Nipples, chapped, treatment of, 46, 352, 603
Nitro-glycerine, remarkable tolerance of, 102
Northrup, antipyrin poisoning, 461
Nurses, mortality among, 685
Nutritive changes in cancerous patients, 557

OBITUARY—
Joseph L. Bodine, 49
Professor August Breisky, 688
Edward T. Bruen, 383
John Call Dalton, 189
Francis Cornelius Donders, 355
Samuel W. Gross, 440, 474, 532
Robert Palmer Howard, 383, 419
James B. Hunter, 662
J. H. Kidder, 411
Harvey Lindsley, 493
Samuel Preston Moore, 634
Professor Roser, 56
Duane B. Simmons, 552
Edwin M. Snow, 27
John Swinburne, 383
Charles J. B. Williams, 411
Carl Zeiss, 166
Obstetrical antisepsis practised by nurses, 103
Obstetrics, casuistry in, 730
cornutin in, 546
therapeutics of 1888, 102
Obstruction, acute intestinal, 296, 468
Ocular antisepsis, 17
O'Donovan, use of manganese in dysmenorrhœa, 367
Œdema, angioneurotic, 321
as a diagnostic sign of carcinoma of stomach, 519
Ontario Medical Association, 580
Oöphorectomy, 306
Operating-room of Hotel Dieu, in Lyons, 420
Ophthalmia in the newborn, treatment of, 14
Optic nerve atrophy, suspension for, 489
Opium as a hemostatic, 576
Osler, on phagocytes, 393, 421
Otitis, acute diffuse, treatment of, 159
scarlatinous, 471
suppurative, treated with creolin, 490
Ovarian disease, nervous symptoms of, 497
Ovaries, hæmatoma of, 51
Ovary, papilloma of, 137
Oxygen, therapeutic value of, 584
Ozæna, 349, 615

PACHYMENINGITIS, hemorrhagic, 360
Palpebral affections treated with carbolic acid, 46
Panama Isthmus, mortality on the, 53
Pancreatitis, acute, 197, 225, 256, 281, 309
Paracentesis pericardii, 407
Paralysis after pneumonia, 18
gustatory, 517
Parotitis, acute, 212
Pastes in dermatology, 18
Pasteur, honors to, 196
Pastilles, antiseptic, 100
Patella, treatment of fracture of, 629
Pelvis, trephining for psoitis, 656
Pennsylvania State Medical Society, 580
University of, assistant professor of clinical medicine, 661
Pepsin, local application of, 576
Perineum, rupture of, new procedure in cases of, 81
Peritoneum, tuberculosis of, 464
Peritonitis, tubercular, surgical treatment of, 603, 681
with perforation, surgical treatment of, 693
Perityphlitic abscess, 330, 449
Phagocytes, 393, 421
Pharmacopœia, convention for the revising of, 391
Pharynx, adenoid hypertrophy of, 641
hyperplasia of, 63
nasal, diseases of, 640
Phenacetin, 15, 130, 156, 351, 551
Philadelphia polyclinic course, 391
Phimosis, treatment of, 437
Phlegmasia dolens, treatment of, 380
Phthisical sweat, infectivity of, 297
Phthisis, microbe theory of, 527
prevention of, in Prussia, 579
treated with creasote, 17
oil of eucalyptus, 241
tannin, 349
Pigmentation, diffused, produced by arsenic, 251
Pityriasis versicolor, treatment of, 295
Plate material for intestinal surgery, 503
Pleuritis, purulent, intra-pleural injections of naphthol in, 574
Pleurotomy, indications for, 157
Pneumonia, acute, cause of death in, 73
chloroform inhalations in, 682
croupous, etiology of, 193
cut short by antipyrin, 646
lobar, 1, 22, 400, 434
transmission of, in pregnancy, 546
treated with strophanthus, 159
with streptococci, 558
Pneumotomy for pulmonary abscess, 102
Polydactylism, 504
Poor, the, care of, 47
Pope's physician, 732
Portal blood, passage of, into general circulation, 722
Porter, a case of cholelithotomy, 679
Potato-cure for swallowed foreign bodies, 196, 574
Pott's disease treated by suspension, 76, 414
Post-graduate instruction in London, 54
medical school, New York, 661
Pregnancy, dropsy of, 159
duration of, 298
ectopic and pelvic hæmatocele, 729
laparotomy for, 126
extra-uterine, 50, 127
hæmaturia in, 486
muscular atrophy in, 379
operative surgery in, 187
Presbyterian Hospital, donations to, 688
Profession, excessive growth of the, 715
Prostate, hypertrophy of, operative procedures in, 67, 223
Proteids in urine, Esbach's method of determining, 416
Pruritus of vulva, treatment of, 159
Psoitis, trephining pelvis for, 656
Psoriasis, treatment of, 271, 628
Ptomaine, a new, 695
Puerperal fever, prevention of, 83
infection, 547
Pulmonary abscess treated by pneumotomy, 102
vein, right, emptying into superior vena cava, 690
Pus in urine, test for detection of, 139
Pyloric sphincter, 299
stricture, diagnosis and operation, 691
Pylorus, digital divulsion of, 561, 607
Pyosalpinx, double tubercular, 137
Pyrodin, 74

QUARANTINE conferences, 110, 336
station at entrance of Delaware Bay 571
Quinine, hypodermatics of, in malaria, 407

RABIES, prevention of, by Pasteurian inoculation, 298
Rachford, etiology of diphtheria, 113
Rachitis associated with laryngismus stridulus and eclampsia, 471
Railway trains, first help on, 410
Randall, curvilinear reflection of Weiss as a prodromal sign of myopia, 152
Rectum, cancer of, 669
prolapse of, operative treatment for, 437
resection of, 686
Remuneration of medical men, 532
Renal calculi, formation of, 556
surgery, 573
Respiration, arrested, in anæsthesia, treatment of, 236
Resuscitation after apparent death, 97
Reviews—
Charcot, Diseases of the Nervous System, 163
Hare, Affections of the Mediastinum, 497
Lewers, Diseases of Women, 49
Mays, Pulmonary Consumption, 163
Mears, Surgical Interference in Perforating Typhoid Ulcer, 191
Sexton, The Ear and its Diseases, 77
Skene, Diseases of Women, 329
Transactions of the Association of American Physicians, 131
Willard, Osteotomy for Anterior Curvatures of the Leg, 164
Rheumatic affections, rhus toxicodendron in, 446
Rheumatism, acute articular, antipyrin in, 712
Rhinoscleroma, 692
Rice, treatment of nasal diseases, 373
Richardson, T. G., resignation of, 687
River pollution, question of, 688
Roosevelt, tubercle bacilli, 510
Rush, medals of, 726
monument committee, 634

SALICYLATE of cresol. 269
Salol as a dressing, 572
in children's diseases, 45
in cholera, 270
in vomiting of pregnancy, 570
Samaritan service, 49
Sarcoma of tonsil, excision, 581
Satterthwaite, lobular embolic pneumonia, 1, 400, 434
Scabies, new soap for, 683
treatment of, 266, 629
Scarlet fever, mercuric iodide in, 158
etiology of, 684
Schoolrooms, floor-space and ventilation in, 251
Sciatic neuritis, treatment of, 384
Sciatica, antipyrin in, 379
cured by injections of osmic acid, 384
treatment of, by local freezing, 519
Scott, manganese in dysmenorrhœa, 516
Secrecy, professional, limits of, 55
Seiss, treatment of inflammation of frontal sinuses, 10

Senn, laparotomy for typhoid ulcer, 622
Sequelæ of gynecological operations, 397
Serous cavities, aspiration of, 613
Shattuck, opening address in medicine, 720
Shock, railway, three cases of, 72
surgical, treatment of, 241
Sick, the, separated from the indigent poor, 162
Sinuses, frontal, treatment of inflammation of, 10
Skin affections, hydroxylamin in, 241
picric acid in, 656
salol in, 18
Skull, double fracture of, 151
trephining of, and tapping the ventricles, 390
Smith, angioneurotic œdema, 320
treatment of tonsillitis, 14
Snow, bacteriology of, 55
Soap, mercurial, 127
Society Proceedings—
American Laryngological Association, 638, 663
American Medical Association, 701, 716
Section of Diseases of Children, 728
Section of Medicine, 720
Section of Obstetrics and Diseases of Women, 726, 729
Section of Surgery, 724
American Surgical Association, 580, 606
Cincinnati Academy of Medicine, 131
College of Physicians of Philadelphia, 414
Congress of German Society of Surgery, 613, 667, 691
Eighth German Congress of Internal Medicine, 528, 552, 613
Gynecological Society of Chicago, 78
Medical Society of the State of New York, 191
Montreal Medico-Chirurgical Society, 106, 137, 305, 414, 689
New York Academy of Medicine, 24, 50, 133, 164, 219, 245, 301, 330, 356, 411, 475, 469, 497, 524, 584, 612, 642, 695
New York County Medical Society, 361
New York Neurological Society, 108, 221, 416, 502
Obstetrical Society of Philadelphia, 118
Philadelphia Academy of Surgery, 552, 688
Philadelphia County Medical Society, 50, 275, 441, 610
Philadelphia Neurological Society, 22, 195, 359, 384
Sore feet, powder for, 560
Sozoiodol, 189
Spasms, tonic and clonic, pathology of, 220
Sphincter, pyloric, 299
Spinal cord, compression of, in fractured vertebra, 502
hemorrhage into cervical, 503
surgery of, 576
suspension in treatment of diseases of, 592
Spleen, acupuncture in enlargement of, 350
chronic tumors of, treated with parenchymatous injections of distilled water, 159
spontaneous rupture of, 296
Splenectomy, 186, 380, 628
Sputa cup, pocket, for consumptives, 637
Sputum, tuberculous, virulence of, 42
Stamps, danger in, 54
St. Augustine, health of, 83
Starr, electricity as a therapeutic agent, 339
tumors of the brain in childhood, 29
Steam, disinfecting action of, 519
Sternum, resection of, 712
Sterility, virile, 160, 555
Sternberg, hunting yellow fever germs, 253
Stewart, poisoning by chrome yellow, 85
suspension in diseases of spinal cord, 592
Stomach, atrophic catarrh of, treated with pancreatin, 127
atrophy of secreting glands of, 47, 112
cancer of, œdema a diagnostic sign of, 519
dilatation of, 185, 556
diseases of, recent advances in the diagnosis and treatment of, 327
functions in pulmonary tuberculosis, 351
malignant disease of, 689
microbes of, 466
nervous affections of, salt in, 158
Stools, colorless, significance of, 436
Streptococci, pneumonia from, 558
Stricture, pyloric, diagnosis and operation, 691
Strophanthus, 218
and barium, clinical application of, 364
Students, number of, in Germany, Great Britain, and America, 49
Subclavian artery, right, arising from aortic arch, 690
Sublimate, use of, in obstetrics, 545
Sueve, osseous growth in the falx cerebri, 320
Sulphonal, action of, 156, 187, 270, 355
exanthem, 156
poisoning by, 14
Sulphuric acid gas, antiseptic properties of, 575
Suppositories of glycerine, 463, 656
Surgery, Address in, 708
Suspension, self-, dangers of, 579
treatment of tabes by, 682
Sutures, antiseptic, 519
Sweating of feet, treatment of, 15
Sweat, phthisical, infectivity of, 297
Sycosis, treatment of, 100
Symphysis pubis, partial resection of, 670
Syphilis, cerebral, 25
hereditary, 128, 240
inoculated through tattooing, 187
intramuscular injections of mercury in, 343
of upper air passages, 663
reinfection of, a case of, 269
tolerance of the iodides in, 15
treated with salicylate of mercury, 296
treatment of, 16
unusual methods of acquiring, 233, 134, 263
Syringomyelia, 491

TABES dorsalis, mechanical treatment of, 216
treated by suspension, 682
Tape-worm in children, 713
Tattoo-marks, a new procedure for destroying, 348
Taylor, prevention and treatment of crural adduction, 315
Teeth, painless extraction of, 15
Testicle, tuberculosis of, in an infant, 330
Tetanic bacillus, pure cultures of, 694
Tetanus, absolute rest in, 465
following ovariotomy, 731
traumatic, pilocarpine injections in, 466
Tetany, 471
Thermo-polypnœic centre, 109
Thermo-taxis, 109
Thomas, sequelæ of gynecological operations, 397, 411
Thorner, hæmatoma of the septum narium, 485
Thyroid artery, abnormalities of, 305
gland, sarcoma of, 664
tumor connected with, 306
Tinea solium, etymology of, 252
tonsurans, treatment of, 712
Tongue, ablation of cancer of, 669
fissures of, treated with papayotin, 126
tuberculosis of, 666
Tonsil, hypertrophy of, galvano-cautery in, 663
lingual, hypertrophy of, 307
sarcoma of, 119
Tonsil, surgical treatment of, 678
supernumerary, 638
treatment of diseased, 664
Tonsillitis treated by salicylate of soda, 14
Tonsils, ignipuncture of, 297
Toothache, buckthorn for, 15
drops, 634
Toxæmia, relation to passage of portal blood into circulation, 722
Trachea, brass shawl-pin removed from, 404
Tracheotomy, curved director used in, 689
tube in bifurcation of bronchi, 378
Tubercle bacilli, 510, 524, 546
Tubercular processes, treatment with balsam of Peru, 603
Tuberculosis a specific infectious disease, 73
hot-air treatment of, 488
human and bovine, 335, 469
inhalations of red iodide of mercury in, 351
in meat and milk, 188
laryngeal, treatment of, 613
narrow chests and, 616
of larynx, unusual manifestations of, 664
of tongue, 666
prophylaxis of, 571, 617, 631, 636
sputa as a means of transmitting, 553
treated with creasote, 185, 437
homeriana, 489
thymol, 128
Tympanites, puncture of abdomen for, 161
Typhlitis, antiseptic treatment of, 658
Typhoid and cholera bacillus, vitality of, 628
bacilli, fœtal infection by, 683
fever and polluted water, 299
intestinal hemorrhage in, 488
sudden death in, 483
thymol in, 298
treated by mercurial inunction, 101
naphthol, 45, 160
treatment of infantile, 128, 216
ulcer, perforating, laparotomy for, 622

ULCER, gastric and duodenal, 306
perforating typhoid, laparotomy for, 622
tuberculous, of tongue, treatment of, 489
Uralium, 574
Urethral fever, 106
Uric acid, influence of Carlsbad water on, 137
Urine, determination of albumin in, 43
incontinence of, in children, 572
Uterine fibroids, Apostoli's treatment of, 536
Uterus, appendages of, treatment of suppurative disease of, 164
bleeding fibroid tumors of, treatment of, 365
cancer of cervix of, 169, 192, 573
extirpation of, for cancer, 602
hemorrhage of, some uncured cases of, 78
inversion of, 727
laceration of cervix of, restoration of, 122

VAN VALZAH, asthma, 513
Variola and varioloid treated with cocaine, 407
Ventilation and floor-space in schoolrooms, 251
Ventricles, tapping of, and trephining the skull, 275, 380
Vermiform appendix, perforation of, 215
Vertebral injuries, extension in, 76
Vesicular murmur, production of, 559
Viennese medical students, 732
Vomiting, clinical aspects of, 723
hysterical, treatment of, 156, 290
of pregnancy, ingluvin in, 187, 574
persistent, 656
treatment of, 127
Vulva, pruritus of, treatment of, 159

WARREN triennial prize, 661
Warts, application for, 684
Water, distilled, parenchymatous injections of, in chronic tumors of spleen, 159
drinking, relations of pathogenic bacteria in, 382
polluted, and typhoid fever, 299
supply, best means of purifying, 549
Webb, operative procedure in hypertrophy of prostate, 66
Weigert's apparatus, 247
Weil's disease, so called, 577
Weir, treatment of perityphlitic abscess, 449
Weiss, curvilinear reflection a prodromal sign of myopia, 152
Wharton, brass shawl-pin removed from trachea, 404
White, the bidet in surgery, 37
Whooping-cough, antipyrin in, 406
belladonna in, 657
carbolic acid and iodine in, 466
spray in, 657, 684
treated with cocaine, 72
treatment of, 241, 406, 547
Wilson, etiology and prophylaxis of tuberculous diseases, 617
Winslow, vaginal hysterectomy, 39
Women, cause of biliary calculi in, 408
Wood, right-sided aphasia in a left-handed person, 484
Work, hysterical vomiting, 290
Wounds, antiseptic cotton for the dressing of, 408
Wounds, dry dressing of,, 668
visceral, laparotomy in, 655

YELLOW FEVER, bacillus of, 103
bicarbonate of sodium and bichloride of mercury in, 656
etiology of, 91, 133, 191, 253
epidemic in Florida, origin of, 28, 138
inoculation for, 53
risks of outbreak, 642

ZIEMSSEN'S clinical institute, 411

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